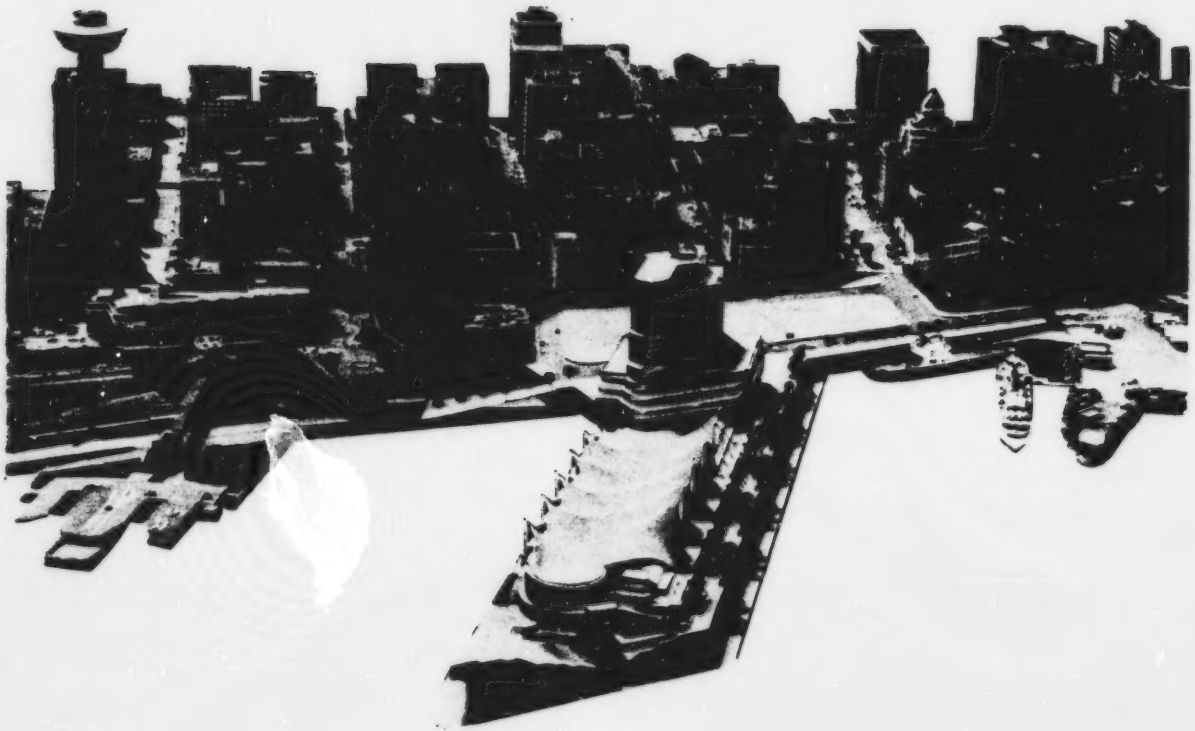
TP4961E

ACCESS PLAN REVIEW

CANADIAN PAVILION

CANADA PLACE - EXPO '86



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ACCESS PLAN REVIEW

The Canadian Pavilion

Canada Place, EXPO 86
Vancouver, British Columbia

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CONSULTING CIVIL ENGINEERS AND TRANSPORTATION PLANNERS

1100 West 7th Avenue
Vancouver, B.C., V6H 1B4
Telephone: (604) 733 2233

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The contents of this report reflect the views of the Contractor and not necessarily the official views or policies of the Transportation Development Centre of Transport Canada.

PROJECT TEAM

The project team for this review was composed of :

Mr. Graeme D. Hamilton, P.Eng., MBA
Mr. Eanson Y.S. Ho, P.Eng.
Mr. Paul C. Lee, P.Eng.
Mr. Wallace G. Atkinson, P.Eng.
Mr. Jay N. Friesen

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17. Abstract

The Canadian Pavilion at Canada Place will serve as the Canadian Government Exposition Centre during EXPO 86, a world-class fair to be held May to October 1986, in downtown Vancouver, B.C. The report reviews the mode of travel for visitors arriving in Greater Vancouver for EXPO 86 (originating modes) and specifically addresses the modes of access to the Canadian Pavilion, located on the Burrard Inlet approximately 1 km north of the main site located adjacent to False Creek. The analyses of visitation volumes to the Canadian Pavilion include a breakdown by hour and by mode, as well as loading and unloading requirements for a design day. The Advanced Light Rapid Transit System (ALRT) linking the Pavilion with the EXPO 86 main site also has been studied and strategies have been identified to accommodate the expected visitor movements, and resultant reservoir requirements.

The study recommends that a secondary transportation connection be pursued between the Pavilion and the distant West Gate of the main site, and that a contingency plan be developed in the unlikely event that the ALRT link fails to operate.

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17. Résumé

Concernant EXPO 86, exposition universelle devant avoir lieu à Vancouver, C.-B., de mai à octobre 1986, cette étude passe en revue les modes de transport qu'emprunteront les visiteurs pour se rendre de leur point d'origine à Vancouver; elle étudie plus particulièrement les accès au Pavillon du Canada qui servira de centre d'exposition du gouvernement canadien et qui se trouve à 1 km environ au nord de False Creek, site de l'exposition proprement dite. Elle calcule le débit des visiteurs dont elle fait la ventilation horaire et modale, en plus d'analyser les besoins en matière d'installations d'embarquement et de débarquement à l'égard d'une journée dite de référence. Elle a également considéré le système avancé de transport rapide et léger (SATRL) envisagé pour assurer la liaison entre ce pavillon et le site principal et a passé en revue les différentes considérations devant présider au dimensionnement des quais d'arrivée de de départ.

Enfin, l'étude recommande une deuxième liaison entre le pavillon et la porte Ouest du site et l'adoption d'un plan de substitution au cas où le système de transport SATRL ne fonctionnerait pas.

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EXPO 86. Pavillon du Canada. Canada Place. Modes d'accès. SATRL. Flux de visiteurs. Répartition modale.	Le CDT dispose d'un nombre limité d'exemplaires.

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Project Officer
Mrs Ling Suen, Senior Special Advisor

Canada Harbour Place Corporation:

Mr. W.G. Leithead, Vice President, Design and Development

EXPO 86:

Mr. George Tawes-Smith, Vice President. Marketing
Mr. Frank Dillon, Director, General Services
Mr. Fred Rankin, P.E., Transportation Consultant

B.C. Transit, ALRT Project:

Mr. Ian Graham
Mr. David Calver. P.Eng.

City of Vancouver:

Mr. Ian Adam, P.Eng., Transportation Engineer

SUMMARY

SUMMARY

The purpose of this report is to review the access requirements for the Canadian Pavilion at Canada Place and to identify originating modal volumes. The Pavilion will serve as the Canadian Government Exhibition Centre during EXPO 86 - a world class fair scheduled to be held in Vancouver, British Columbia, during the period May 2 to October 13, 1986 - and later to become a trade and convention centre. The Pavilion is located on Burrard inlet just over one kilometre away from the mainsite located adjacent False Creek.

The originating modal volumes were forecast based on data from the Market Facts telephone survey. The weekly and monthly attendances to the Canadian Pavilion are calculated for a range of forecast visits to EXPO 86. These are given in Table 2-1. Daily visits for corresponding forecasts are shown in APPENDIX I. Originating modes considered in this review included automobile, rail, inter-city bus, marine and air. Table 3-1 shows the originating modal shares and APPENDIX II shows the forecast volumes by area and by mode. The telephone survey also resulted in the forecasting of the number of visitors based on current awareness recognizing 2.6 million visitors with 13.1 million visits and on extensive awareness recognizing 4.2 million visitors with 20 million visits. "Current awareness" was the state of knowledge of EXPO 86 at the time of the telephone survey (March, 1983), with the total number of visitors generated by EXPO 86 forecast to lie between 40% to 45% of those surveyed. "Extensive awareness" could be achieved by an advertising campaign with the total number of visitors generated by EXPO 86 forecast to lie between 66% to 71% of those surveyed.

Access modes to the Canadian Pavilion include automobile, taxi and limousine, transit bus, walk and cycle and Advanced Light Rail Transit (ALRT). The access requirements for loading and unloading are shown in Table 5-4. The parking requirement for automobiles was forecast to be 2,700 spaces while there are 770 parking spaces currently planned for Canada Place. These on-site spaces are to be shared with the hotel, office and other uses, with the additional parking spaces having to be sought in the vicinity.

The on-site crowd was analysed with various durations of stay. The accumulated on-site crowd ranges from 7,000 to 21,000 persons recognizing durations of stay from one to five hours respectively. A duration of stay of three to four hours will result in an on-site crowd of 16,000 persons. The on-site crowd for various durations of stay is shown in Figure 6-1.

The installation of pedestrian movers for the purpose of demonstrating Canadian technology was explored. One possible application is between the Waterfront Station and the entrance to the Pavilion. Four technologies were briefly reviewed and SailRail, developed by the Urban Transit Development Corporation, appears to be the only Canadian technology available.

The Canadian Pavilion and the mainsite are planned to be linked by a special ALRT train running between the Waterfront and Stadium stations. The volume of passenger movements on the link varies with the durations of stay at the Pavilion. The peak hour capacity for the link from the Pavilion to the mainsite was forecast to be 4,500 per hour assuming a duration of stay between three to four hours at the Pavilion. The longer the duration of stay at the Pavilion, the lower the passenger movements on the link.

When the duration of stay approaches to that of EXPO (five hours), the link will be anticipated to function as a transportation link for visitors using the gates at the EXPO site but whose destination is the Canadian Pavilion. It is anticipated that these visitors will enter EXPO at one of the four gates at the mainsite, then board the ALRT link without spending time in the mainsite (e.g. a separate trip to CHP for a day). After spending five hours at the Canadian Pavilion, 75% of these visitors are anticipated to return to the mainsite for departure. This assumes the transportation management policy of specific modes at specific gates. It was further assumed that, with a penetration rate of 4 times, 25% of the visitors attending EXPO will visit the Canadian Pavilion at any given day. The link volume is forecast at about 4,000 per peak hour per direction (Table 8-1). The hourly volumes are shown in Figures 8-1 and 8-2.

A secondary transportation link was also recommended between the West Gate and the Stadium Station (or directly to the Pavilion). The purpose of the secondary link is to reduce the walking distance and increase accessibility from the west portion of the site to the Stadium Station, as well as being a contingency mode in the event that the dedicated ALRT failed to operate. Vehicles using new technology such as electric powered vehicle and hybrid flywheel vehicles and articulated double-decker buses, may be considered to attract riders. The preparation of a transportation manual is also recommended to specify operating procedures if such an emergency occurs.

It should be noted that this analysis has not included the hotel and office facilities. The critical elements of these facilities, such as possible shared parking arrangements, courier lay-bys, taxi and loading for restaurants and cruise ships, bus parking and circulation should be reviewed and updated as the overall design evolves.

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1.0 INTRODUCTION

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1.1 General

The world class transportation exposition, EXPO 86, planned for Vancouver, British Columbia, in 1986 has the theme of demonstrating the achievements of MAN IN MOTION. The exposition will be in operation between May and October 1986, and will be located on the north shore of False Creek in downtown Vancouver.

The organizers intend the impacts of technological change and of technology development to figure prominently in exhibitors' presentations, and, if possible, be applied on site during the exposition in the form of an advanced circulation systems demonstration. The Canadian Government exhibition will be located at the Canadian Pavilion at Canada Place on the waterfront of Burrard Inlet (Figure 1-1). Canada Place is a cruise ship facility which will house the Canadian exhibition during EXPO 86 and subsequently will be converted to Vancouver's Trade and Convention Centre. with other amenties.

The Canadian Pavilion will be a principal exhibit and an integral part of EXPO 86. It is to be linked to the mainsite at False Creek by a dedicated Advanced Light Rail Transit train (ALRT). From a transportation view-point, the waterfront site of the Pavilion is unique since it can be accessed directly by a variety of travel modes. Particularly, the proximity of the site to Vancouver's central business district (CBD) is attractive to pedestrian access. The Transportation Development Centre (TDC), being the national transportation research and development body of Transport Canada, has assisted the EXPO 86 Corporation in preparing the initial regional transport plans as well as a preliminary internal circulation plan for the False Creek site. It recognizes that similar analytical work will be required for the federal pavilion so that it will be accessible both from the mainsite and other visitor generators. Tasked by the Office of the Federal Co-ordinator of EXPO 86, TDC undertook this work to review the access requirements and other related transportation issues for the Pavilion site.

1.2 Purpose and Scope

The purpose of this review is to establish access facility requirements for the Canadian Pavilion and to identify the originating modal volumes, based on current marketing information.

The scope of the review is to provide the magnitude of increase of originating modes generated by EXPO 86 and to provide design information for the Pavilion design group.

1.3 Terms of reference

The terms of reference for the Access Plan Review are:

a. Estimate the number of EXPO 86 visitors by originating modes.

b. Identify all access modes and their respective modal shares using the Pavilion.

c. Forecast the peak hour modal volumes at the Pavilion by days of the week.

d. Determine the modal storage and loading requirements at the Pavilion.

e. Evaluate transportation system capacities and technologies to meet forecast access modal volumes, including the pedestrian mode.

f. Forecast the number of visitors and their origin using the Canadian Pavilion based on data provided by EXPO 86.

g. Forecast the volume on the link between the Pavilion and the mainsite.

h. Prepare a final report on the above tasks.

1.4 Source of Data

Analysis for the access plan review was based on the information made available through various agencies. All marketing data for EXPO 86 was obtained from the Marketing Department of EXPO 86. Specifically referred to in this review are the EXPO 86 INITIAL SURVEY, THE MARCH 1983 MARKET, prepared by Market Facts of Canada Ltd. dated May 1983 and the ATTENDANCE ANALYSIS AND PHYSICAL PLANNING GUIDELINES FOR TRANSPO 86 prepared by Economic Research Associates in July. 1981, and the EXPO 86 ACCESS PLAN prepared by Manop Services Ltd dated August 1982. This latter report drew on experience from EXPO 67 in Montreal, for arrival and departure rates.

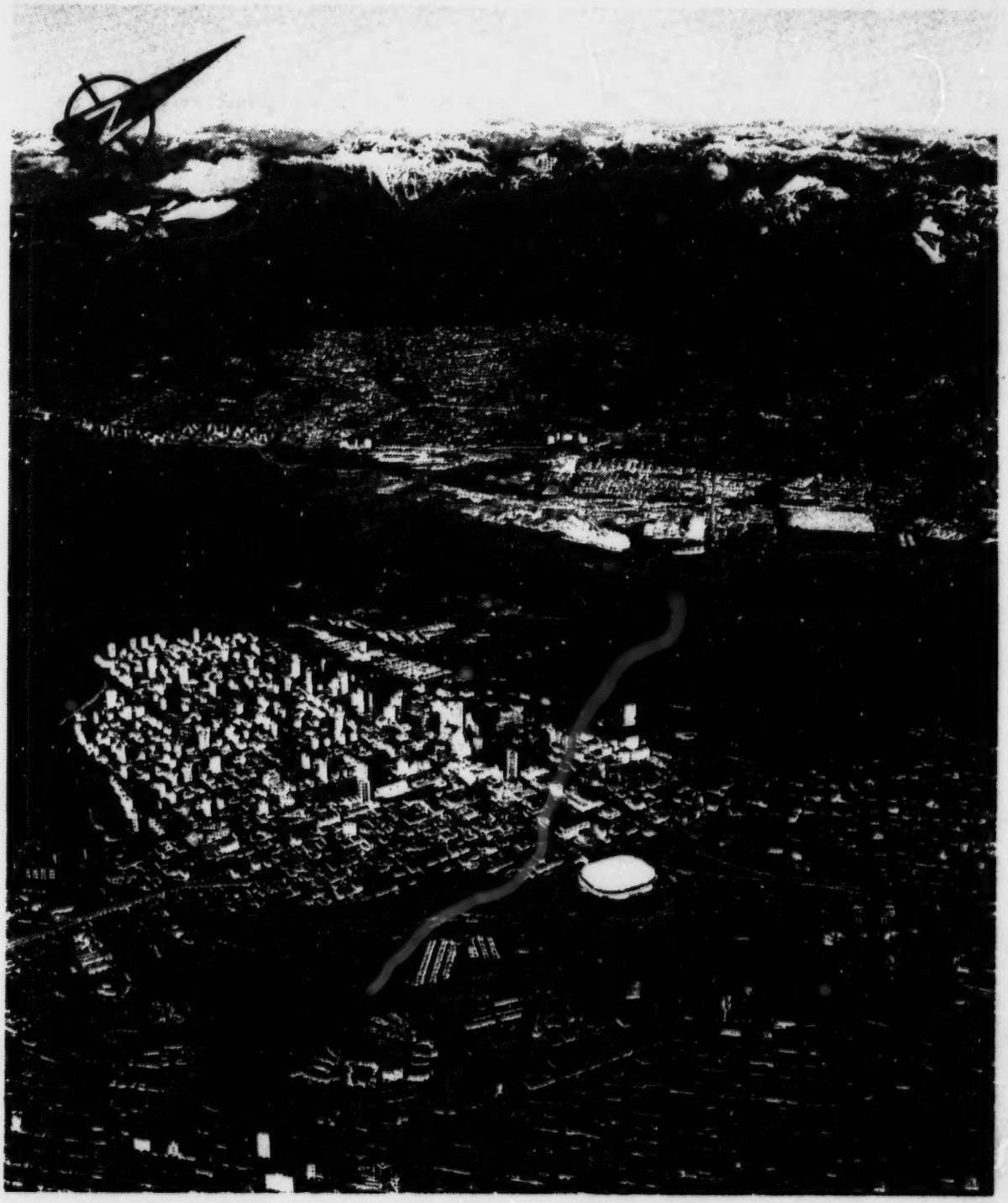

FIGURE 1-1

LOCATION PLAN

2.0 THE CANADIAN PAVILION

2.0 THE CANADIAN PAVILION

2.1 The Site

The Canadian Pavilion is located at Canada Place at the foot of Burrard Street. Canada Place is being built by the Canada Harbour Place Corporation on a pier presently known as Pier B-C. It is planned as a cruise ship facility with a trade and convention centre for Vancouver. The access to the site is unique. The roadway system consists of the Cordova Extension, the Howe Street - Burrard Street Connector and the Waterfront roadway. Figure 2-1 illustrates the access system to the Pavilion. In addition to the roadway system, the vicinity can be accessed by the Sea-Bus, bus transit and the ALRT. The proximity of the Pavilion to the Vancouver's downtown attracts pedestrians from the central business district.

2.2 Canada Place

In addition to housing of the Canadian Pavilion during EXPO 86, Canada Place has a dock apron nine metres wide extending around three sides of the pier to accommodate up to five cruise ships simultaneously. The design of the Canada Place has a marine theme: a strong prow thrusting into the pacific and a roof line suggesting sails catching the wind with a superstructure of an ocean-going liner (Figure 2-2). This cruise ship terminal includes customs and immigration inspection facilities, areas for bus loading and unloading, taxi stands and parking.

A 500-room hotel will be developed by the private sector with first class and full service. Four floors of office space will be included in the development with limited commercial and retail facilities. With about 9 000 square metres of the main exhition hall, it provides the facilities for the Vancouver trade and convention centre.

2.3 The Canadian Pavilion

The Canadian Pavilion will be the Canadian Government Exhibition Centre located at Canada Place during EXPO 86. It will occupy about 10,600 square metres of exhibition space at Canada Place with an amphitheatre and an Imax theatre which will become a permanent feature. The Canadian Pavilion is an integral part of the exposition at the False Creek site and will be used as an entrance gate to the fair. The weekly and monthly visiting volumes are shown in Table 2-1. The daily visiting volumes are shown in APPENDIX I. These forecast volumes assumed that 25% of the visitors will visit the Canadian Pavilion at least once.

2.4 The Canadian Pavilion Market

As the Canadian Pavilion is an integral part of EXPO 86, the number of visitors to the Pavilion is a function of the EXPO 86 market characteristics. EXPO 86 had completed two studies of the market for this world class exposition. One study was conducted in 1981 by Economic Research Associates (ERA). The market defined by this study was based on past fair experience as well as spatial relationship with major population centres within 240 km.

The second study was completed in May, 1983, by Market Facts Canada Ltd. The market defined by this study was based on sample telephone surveys across Canada, and in the states of Washington and California (excluding overseas). The survey summarized market information in travel modes, accommodation, average group size and market-based attendance estimates.

The study provided two attendance estimates. In the survey, the terms visitor and visit are used. The term **visitor** refers to the number of people coming to Vancouver for EXPO 86. The term **visits** refers to the aggregate number of times visitors go to the fair. The number of times each visitor attends the fair is called the **penetration rate.** The number of visits is therefore the product of the number of visitors multiplied by the penetration rate.

Excluding the overseas visitors, one estimate was based on **current market awareness**, which yielded 2.6 million visitors with 13.1 million visits. The other estimate was based on **extensive awareness** achieved by promotion and advertising, which yielded 4.2 million visitors with 20.0 million visits.

WEEK ENDING SATURDAY	PERCENT OF TOTAL	TOTAL EXPO 86 FORECAST VISITS 13,000,000	15,000,000	16,500,000	20,000,000	25,000,000
MAY						
3	1.4	45,500	52,500	57,750	70,000	87,500
10	3.0	97,500	112,500	123,750	150,000	187,500
17	3.0	97,500	112,500	123,750	150,000	187,500
24	3.6	117,000	135,000	148,500	180,000	225,000
31	4.0	130,000	150,000	165,000	200,000	250,000
TOTAL MAY	15.0	487,500	562,500	618,750	750,000	937,500
JUNE						
7	4.1	133,250	153,750	169,125	205,000	256,250
14	4.6	149,500	172,500	189,750	230,000	287,500
21	4.6	149,500	172,500	189,750	230,000	287,500
28	4.7	152,750	176,250	193,875	235,000	293,750
TOTAL JUNE	18.0	585,000	675,000	742,500	900,000	1,125,000
JULY						
5	5.0	162,500	187,500	206,250	250,000	312,500
12	4.9	159,250	183,750	202,125	245,000	306,250
19	5.0	162,500	187,500	206,250	250,000	312,500
26	5.1	165,750	191,250	210,375	255,000	318,750
TOTAL JULY	20.0	650,000	750,000	825,000	1,000,000	1,250,000
AUGUST						
2	4.5	146,250	168,750	185,625	225,000	281,250
9	4.2	136,500	157,500	173,250	210,000	262,500
16	4.1	133,250	153,750	169,125	205,000	256,250
23	3.7	120,250	138,750	152,625	185,000	231,250
30	3.5	113,750	131,250	144,375	175,000	218,750
TOTAL AUGUST	20.0	650,000	750,000	825,000	1,000,000	1,250,000
SEPTEMBER						
6	3.0	97,500	112,500	123,750	150,000	187,500
13	3.0	97,500	112,500	123,750	150,000	187,500
20	3.0	97,500	112,500	123,750	150,000	187,500
27	3.0	97,500	112,500	123,750	150,000	187,500
TOTAL SEPT	12.0	390,000	450,000	495,000	600,000	750,000
OCTOBER						
4	3.0	97,500	112,500	123,750	150,000	187,500
11	3.0	97,500	112,500	123,750	150,000	187,500
18	3.0	97,500	112,500	123,750	150,000	187,500
25	3.0	97,500	112,500	123,750	150,000	187,500
31	3.0	97,500	112,500	123,750	150,000	187,500
TOTAL OCTOBER	15.0	487,500	562,500	618,750	750,000	937,500
TOTAL CANADIAN PAVILION VISITS	100.0	3,250,000	3,750,000	4,125,000	5,000,000	6,250,000

TABLE 2-1

CANADIAN PAVILION WEEKLY AND MONTHLY VOLUMES

SOURCE: EXPO 86 Forecast

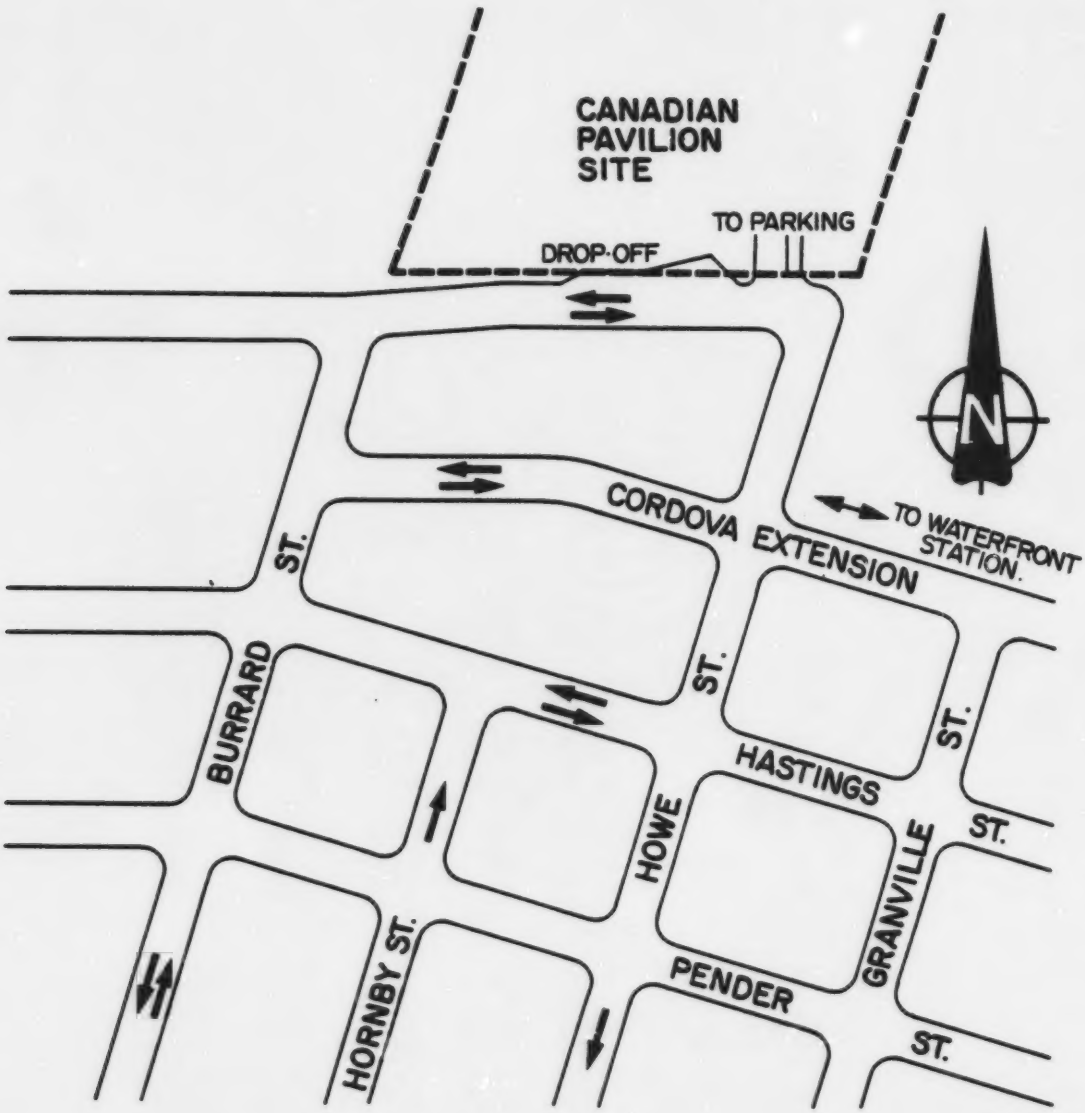

FIGURE 2-1

ACCESS SYSTEM to the CANADIAN PAVILION

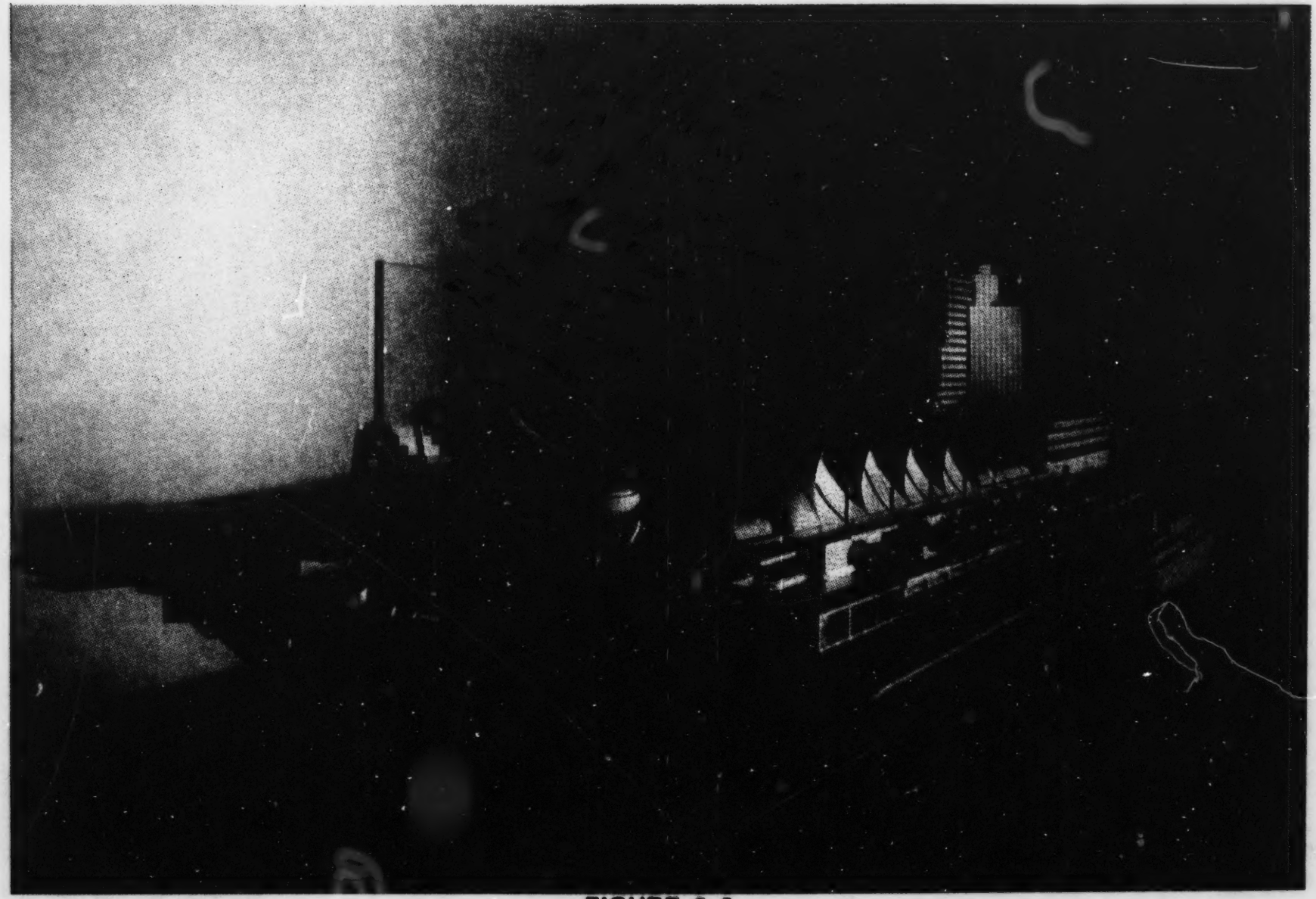

FIGURE 2-2

CANADA PLACE

3.0 ORIGINATING MODES of TRAVEL

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3.1 Originating Modes of Travel

Originating mode of travel is defined as the means of transportation used by the visitors arriving in Greater Vancouver. For example, a visitor leaving home by automobile to reach the airport for a flight to Vancouver, who, upon arrival at Vancouver International Airport. hailed a taxi to reach the fair grounds, would be categorized as having an air originating mode of travel. It should be noted that some originating modes would become access modes. This would be applicable to the Greater Vancouver area in which visitors would combine the two modes without the need to change from originating modes to access modes.

The review of the originating modes, therefore. would apply to those modes which originate outside of Greater Vancouver. Local transportation modes such as ALRT. taxi, automobile, shuttle bus, local transit bus, walk and cycling modes are considered direct access modes which likely would originate within the Greater Vancouver area.

The following originating modes of travel have been identified for the propose of this Access Plan Review:

a. Automobile
b. Rail
c. Inter-City Bus
d. Marine
e. Air

3.1.1 Automobile Mode

All private passenger vehicles including vans, campers and other recreational vehicles are included in this mode. Because of the distance and highway facilities, auto mode would be one of the dominant modes of travel for visitors in the Lower Mainland, the remainder of British Columbia. Alberta. Washington and California.

3.1.2 Rail Mode

This includes VIA Rail and AMTRAK passengers who will be arriving at the joint-usage railway station on Railway Avenue. It is noted that there is no direct rail link between Bellingham and Vancouver; AMTRAK passengers arriving by bus are included in this originating mode.

Commuter rail service, which will directly serve the Greater Vancouver visitors and those from the Fraser Valley area, has been excluded as a component of the rail originating mode. This is due to the uncertainties at this time with respect to the timing and implementation of such a service in the Greater Vancouver area.

3.1.3 Inter-City Bus Mode

Inter-city bus mode includes all charter buses as well as licensed carriers such as Greyhound and Pacific Coach Line with routes and origins outside Greater Vancouver.

3.1.4 Local Transit Bus Mode

The local bus mode, which is considered an originating mode, includes all forms of regular electric and diesel transit services operated by the current authorities within the Greater Vancouver area. Express buses linking the municipalities within the Greater Vancouver area. the Sea-Bus operated by the Metro Transit linking North Vancouver and downtown Vancouver, and Custom Transit for the handicapped visitors are also included in the local bus mode.

3.1.5 Marine Mode

This would include cruise ships, personal pleasure craft and special ferry service operated by EXPO 86 similar to the "vaporetto" service offered at EXPO 67 in Montreal.

Preliminary discussion with Canada Harbour Place Corporation (CHPC) has indicated that the cruise ship activities will most likely remain at the current level during Expo 86. Any increase in cruise ship activities due to Expo 86 is not anticipated at this time. Discussion with Expo 86 marketing staff has confirmed this scenario.

In a report prepared for CHPC and the National Harbours Board by Lea Associates entitled Cruise Ship Terminal Bus Operations Study dated October, 1982, it was indicated that cruise ship passengers are transported by bus from Vancouver International Airport to the cruise ship terminal and return the same way. The cruises offered by the major companies are for touring the Alaskan and British Columbian coastline. Cruises to the Orient or to and from other parts of the world are not being provided at this time. The 1983 peak passenger per day figure was forecast by the report to be between 2,800 and 3,000 persons. The peak condition of 3,000 passengers per day was anticipated to occur 10 to 15 times during the whole season. However, these visitors are not included in the marine mode.

It should be noted that the B.C. Ferry service currently operating between Greater Vancouver and Vancouver Island and other areas in the province is excluded from the marine originating mode. For example, the Swartz Bay-Tsawassen run linking Victoria and Vancouver is considered an integral part of the provincial highway network and hence is not recognized as a specific mode in the context of this analysis. In the same vein, the current ferry service between Washington State and Victoria is excluded from the marine originating mode.

3.1.6 Air Mode

Daily and short-term visitors are expected to arrive on the various float plane services to the Vancouver Harbour area. The predominant component would be the incoming flights, both domestic and international, handled by Vancouver International Airport.

3.2 Originating Modal Shares

The Market Facts study for EXPO 86 has surveyed the travel profile for EXPO 86 visitors from various provinces as well as from the States of Washington and California. Using the information in the survey, the originating modal shares were calculated and summarised in Table 3-1.

Table 3-1 shows, by columns, the weighted modal shares of the various originating modes for both the current and extensive awareness levels. The extension of the rows sums to 100% for each of the market areas as indicated. Table 7 of the Market Facts report as well as the findings contained in the EXPO 86 Access Plan report formed the basis in estimating the modal shares.

As discussed previously, the marine originating mode has not included the cruise ship component. This is due to the current assumption that cruises catering specifically to EXPO 86 visitors would not be provided during the exposition. However, should such service materialize in the future, the modal share of cruise ship passengers should be included within the marine originating mode.

Shuttle buses operating in the downtown core would not have any share of the originating modes as discussed previously.

The remaining major assumption is the assignment of 100% air originating mode to the remainder of U.S. and the offshore market areas. It is acknowledged that this assumption would tend to generate conservative visitor volumes for the air originating mode. However, due to the lack of market data on the modal share of originating modes in the offshore areas as well as the U.S. areas outside of Washington and California, this assumption seems reasonable at this time, and is not sensitive to the total air mode volume. From an overall perspective, it is noted that a 10% decrease of the air originating mode in the remainder of the U.S. market would result in less than a 1% decrease of the total visitor volume estimated for the air originating mode.

MARKET	AUTO	INTER CITY RAIL	INTER CITY BUS	MARINE	TAXI	ALRT	TRANSIT BUS	WALK/C	AIR	TOTAL
VANC REGION	0.50	0.00	0.00	0.01	0.10	0.10	0.25	0.04	0.00	1.00
CENTRAL FRASER	0.60	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	1.00
DEMONEY REGION	0.60	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	1.00
FRASER/CHZAM REG	0.75	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	1.00
SUNSHINE COAST	0.95	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	1.00
VICTORIA REGION	0.75	0.00	0.15	0.05	0.00	0.00	0.00	0.00	0.05	1.00
VANC ISLAND	0.75	0.00	0.18	0.02	0.00	0.00	0.00	0.00	0.05	1.00
REMAINDER OF B.C.	0.70	0.02	0.18	0.00	0.00	0.00	0.00	0.00	0.10	1.00
ALBERTA URBAN	0.60	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.30	1.00
ALBERTA RURAL	0.60	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.30	1.00
MAN/SASK URBAN	0.50	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.40	1.00
MAN/SASK RURAL	0.50	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.40	1.00
ONTARIO URBAN	0.15	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.80	1.00
ONTARIO RURAL	0.15	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.80	1.00
QUEBEC URBAN	0.20	0.18	0.02	0.00	0.00	0.00	0.00	0.00	0.60	1.00
QUEBEC RURAL	0.20	0.18	0.02	0.00	0.00	0.00	0.00	0.00	0.60	1.00
MARITIME URBAN	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.85	1.00
MARITIME RURAL	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.85	1.00
CALIFORNIA URBAN	0.45	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.50	1.00
CALIFORNIA RURAL	0.45	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.50	1.00
WASHINGTON URBAN	0.90	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.06	1.00
WASHINGTON RURAL	0.90	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.06	1.00
REMAINDER U.S.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
OFFSHORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
AVG CDN AVAILABILITY	37.60	1.50	2.60	0.60	2.90	2.90	6.93	1.57	43.40	100.00
AVG KEY AVAILABILITY	41.30	2.05	2.40	0.48	1.81	1.81	4.52	0.73	44.70	100.00

TABLE 3-1 ORIGINATING MODAL SHARES

4.0 FORECAST ORIGINATING MODAL VOLUMES

4.0 FORECAST ORIGINATING MODAL VOLUMES

4.1 Originating Modal Volumes

The originating modal volumes were forecast by using Market Facts survey information. In general, the number of visitors by mode is calculated by multiplying the number of households in the region by the average number of family members who are likely to visit EXPO 86 and then multiplying the percentage of modal share as indicated in the survey.

The forecast volumes of visitors by originating modes for both current and extensive awareness are shown in the Appendix I. It is noted that all volumes are shown in person trips. In addition, the monthly distribution, and the design weekday and weekend-day volumes are indicated. The peaking characteristics and monthly distribution are derived from the ERA report.

The following is a brief description of the headings of the tables showing the forecast volumes as contained in the Appendix II.

Market: With exception to the B.C. areas, the remaining ones are market areas as indicated in the Market Facts report. Market areas within B.C. are in the format of the ERA report. The words urban and rural are abbreviated as URB and RUR respectively.

No. of Households: The total number of households within each market area are estimated by the Market Facts report.

Average No. of Household Members Visiting: This denotes the average size of the visiting party as indicated by the respondent in the Market Facts survey.

Penetration Rate: This is the stated number of times in which the EXPO 86 site would be visited by each member of the household.

Percent Likely to Visit: This is the surveyed percent of the number of households that are very likely to visit Expo 86.

Estimated Visits: This is the estimated attendance to the EXPO 86 for each market area; in effect, the headcount at the turnstiles at the gates.

Percent of Total Visits: The percentage of the number of visits by market area to the total estimated visits for either the current or extensive awareness level.

No. of Visitors: This is the product of No. of Households, and Average No. of Household Members Visiting, and Percent Likely to Visit.

Modal Share, Percent: The percent modal split of a specific originating mode estimated for a market area.

Person: This is the resultant person trips estimated for a specific originating mode of travel within a market area.

Column Totals or Weighted Averages: Of primary concern would be the weighted average for the Modal Share, % column, of which the weighted average of the modal share of each market area for a specific originating mode of travel is shown.
Mon Dist: This denotes the monthly distribution as indicated by the Market Facts survey.

Month and Week: Monthly and weekly volumes for the modal person trips. The weekly factors are those indicated in the ERA report.

Wk End Day and Wk Day: The 24 hour volume of modal person trips for the designed weekend-day and week-day respectively. Factors were derived from the ERA report.

It is pointed out that all of the forecast person trip volumes for the different originating modes would include those regular summer tourist visitors whose visits to Vancouver are not contingent on the EXPO 86 event. No attempts were made to convert the person trip volumes into vehicular or specific unit volumes. Such effort would require input from agencies such as the VIA rail or Transport Canada officials indicating the occupancy rates and other operating details for each particular mode. While it would be relatively straight forward to apply an occupancy rate of 3.5 or 4 to the pleasure crafts of the marine mode, it would require liaison with the providers of the rail and air modes to derive similar rates.

In summary, it is noted that the forecast is "demand oriented", and no effort has been made to estimate the modal volumes on a "capacity restraint" basis. It is further pointed out that the loading of the terminal and related facilities are double that of the forecast person trips to account for the in-coming and out-going movements. The forecast shown herein should be interpreted as order of magnitude estimates pending further analyses and refinement as the Access Plan Review progresses.

4.2 EXPO 86 Generated Visitors

In order to identify the incremental portion of the EXPO 86 visitors that may be using transport facilities such as airports, the British Columbia visitor forecast was compared to that of EXPO 86. Attempts were made to identify the portion of EXPO 86 visitors that may be part of the regular travellers to the Province. The figures used in the comparison were obtained from the ERA report (with its sources at 1979 British Columbia Travel Survey, Canadian Office of Tourism statistics and Custom Data) and the Market Facts report.

It should be noted that the major attendance assumptions made in the Market Facts report are:

a. From the "very likely to visit" response, 70% of B.C. residents will actually visit and 40% of non-B.C. residents will actually visit.
b. From the "somewhat likely to visit" response, 35% of B.C. residents will actually visit and 20% of non-B.C. residents will actually visit.
c. Overall non-B.C. visitor days were reduced by one-third.
d. In the extrapolation from sample data. urban centres carry full weight and non-urban centres carry a 25% weighting.

Section V of the ERA report summarises the forecast of the tourist trade in British Columbia. It should be noted that the forecasts were to British Columbia only. Visitors to other parts of Canada were not included. The forecasts for current awareness and extensive awareness are shown in Tables 4-1 and 4-2 respectively.

The ERA report also indicated that from past exposition experience, the increment of total travel was from 15% to 20%. As shown in Tables 4-1 and 4-2, the total 2nd and 3rd quarter regular tourist visits forecast for 1986 is 3.05 million. The incremental to regular travel due to EXPO 86 current awareness is therefore estimated at 15% and 20%.

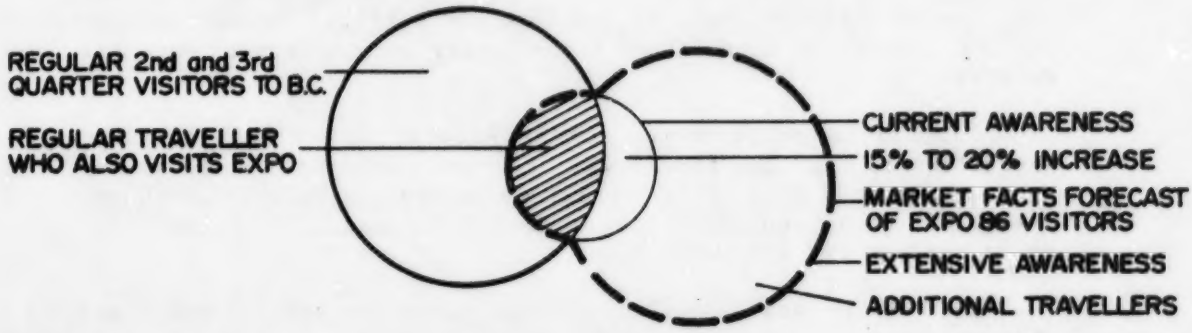
REGULAR 2nd and 3rd QUARTER VISITORS TO B.C.
REGULAR TRAVELLER WHO ALSO VISITS EXPO
CURRENT AWARENESS
15% TO 20% INCREASE
MARKET FACTS FORECAST OF EXPO 86 VISITORS
EXTENSIVE AWARENESS
ADDITIONAL TRAVELLERS

FIGURE 4-1

EXPO '86 INCREMENTAL TRAVEL IN B.C.
SCHEMATIC DIAGRAM

With extensive awareness, it is assumed that the number of regular traveller will remain at 3.05 million. It is further assumed that extensive campaign with advertising will bring in those visitors who may not otherwise be part of regular travel. Figure 4-1 illustrates the incremental concept of the EXPO 86 generated visitors.

The total increase in the number of visitors to British Columbia, as shown in Tables 4-1 and 4-2, ranges from 40% to 45% for the current awareness level to 66% to 71% for the extensive awareness level. The amount of increase for each originating mode would be proportional to the corresponding modal splits. With the limited data for this review, further study for the incremental volume for each originating mode is recommended if such details are required for planning and operational purposes.

4.3 Originating Modal Capacity

VIA Rail's capacity to meet rail incremental passenger demands during EXPO 86 is limited. The forecast of railway passengers indicates the number of people surveyed who wish to take the train to visit EXPO 86 in Vancouver. If the present capacity of 500 passenger per day VIA Rail is considered as a constraint, some of the rail passengers may travel by air or other modes.

There has been a comparison made between the forecast air mode volume for EXPO 86 and the increase in passenger movements at Dorval during EXPO 67. The passenger movements at Dorval, however, represents only a portion of the total air mode passengers visiting EXPO 67 in Montreal. The increased movements at Toronto International, Ottawa, and other major airports (such as New York and Buffalo) should be included in the comparison since these airports are within driving distance from Montreal.

Another major variable which differentiates EXPO 67 from this exposition is that the former was located in Montreal and was within driving distance from major population centres in Ontario and Quebec. A review of the automobile mode at that time would indicate the modal share between air and automobile.

EXPO 86 is now formulating their marketing polcies for transport. They may be successful in negotiating with large bus fleets across North America for marketing attractive travelling parkages. Up to 700 buses a day could be anticipated. It is, therefore, necessary to consider transportation management strategies to ensure efficient movements.

	Avg from other parts of Canada	From U.S. overnight	From Overseas	Total
2nd & 3rd Quarter.1979	1.5	1.32	.253	3.073
Forecast to 1986	1.62	1.43	.560	3.610
15% increase	.243	.215	.084	.542
Reg travellers also visit EXPO	.605	.593	.416	1.614
% of reg travellers	37%	42%	74%	45%
20% increase	.324	.286	.112	.722
Reg travellers also visit EXPO	.524	.522	.388	1.434
% of reg travellers	32%	37%	69%	40%

SOURCE: Tourism Forecast, Canadian Government Office of Tourism, March, 1983

TABLE 4-1 EXPO 86 GENERATED VISITORS
"CURRENT AWARENESS"
MILLIONS OF PERSONS

	Avg from other parts of Canada	From U.S. overnight	From Overseas	Total
2nd & 3rd Quarter	1.5	1.32	.253	3.073
Forecast to 1986	1.62	1.43	.560	3.610
Extensive awareness	1.293	1.951	.750	3.994
Reg traveller who also visit EXPO, 15%	.605	.593	.416	1.614
EXPO generated	.688	1.358	.334	2.380
% of Reg travellers	43%	95%	60%	66%
Reg travellers who also visit EXPO, 20%	.524	.512	.388	1.424
EXPO generated	.769	1.439	.362	2.570
% of reg travellers	48%	101%	65%	71%

SOURCE: Tourism Forecast, Canadian Government Office of Tourism, March, 1983

TABLE 4-2 EXPO GENERATED VISITORS
"EXTENSIVE AWARENESS"
MILLIONS OF VISITORS

5.0 ACCESS MODES to the CANADIAN PAVILION

5.0 ACCESS MODES TO THE CANADIAN PAVILION

5.1 Access Modes

The accessibility of the Canadian Pavilion is critical to the successful operation of this component of EXPO 86. It is therefore necessary to forecast the transportation requirements to the Canadian Pavilion during the months of the exposition. The forecast requirements will enable designers and planners to formulate development and management strategies.

Access modes are the forms of transportation that visitors take to arrive at the Canadian Pavilion. All visitors, upon arrival by one of the access modes, will become a pedestrian to enter the site. Access modes to the Canadian Pavilion are:

Automobile: Automobile mode refers to private vehicles and excludes taxis and limousines, or other commercial passenger carriers. It is anticipated that up to 25% of automobile mode will use the Canada Pavilion gate because of the parking availability in the vicinity.

Taxi & limousine: The Canadian Pavilion is anticipated to attract up to 25% of the taxi and limousine, and airport shuttle mode.

Shuttle bus: It is anticipated that a shuttle bus system will be established for the duration of EXPO 86 to complement the taxi and limousine for short distance downtown trips. The shuttle bus system is anticipated to operate on established routes in the downtown peninsula. Up to 25% of the shuttle bus mode is anticipated to use the Canadian Pavilion gate.

Transit bus (including sea-bus): Local bus transit for the Canadian Pavilion includes the sea-bus (which is considered as a link of the transit bus system) and the regular bus on established routes. It is anticipated that the Granville Street bus corridor will serve primarily the West Gate (Ref: TRANSPORTATION ACCESS MODE LOADING FOR WEST GATE, HAMILTON ASSOCIATES, January 1983). Visitors to the Canadian Pavilion will arrive mainly from the Hastings and Pender Streets corridor and up to 25% of the transit access mode will use the Canada Pavilion gate.

Walk and cycle (W & C): This represents the pedestrian and cycling modes to Canada Pavilion. The visitors of this walk mode are anticipated to come primarily from the downtown hotel area. Figure 5-1 shows the schematic of the distance from each gate and it is anticipated up to 15% of the walk and cycling mode will use the Canadian Pavilion gate.

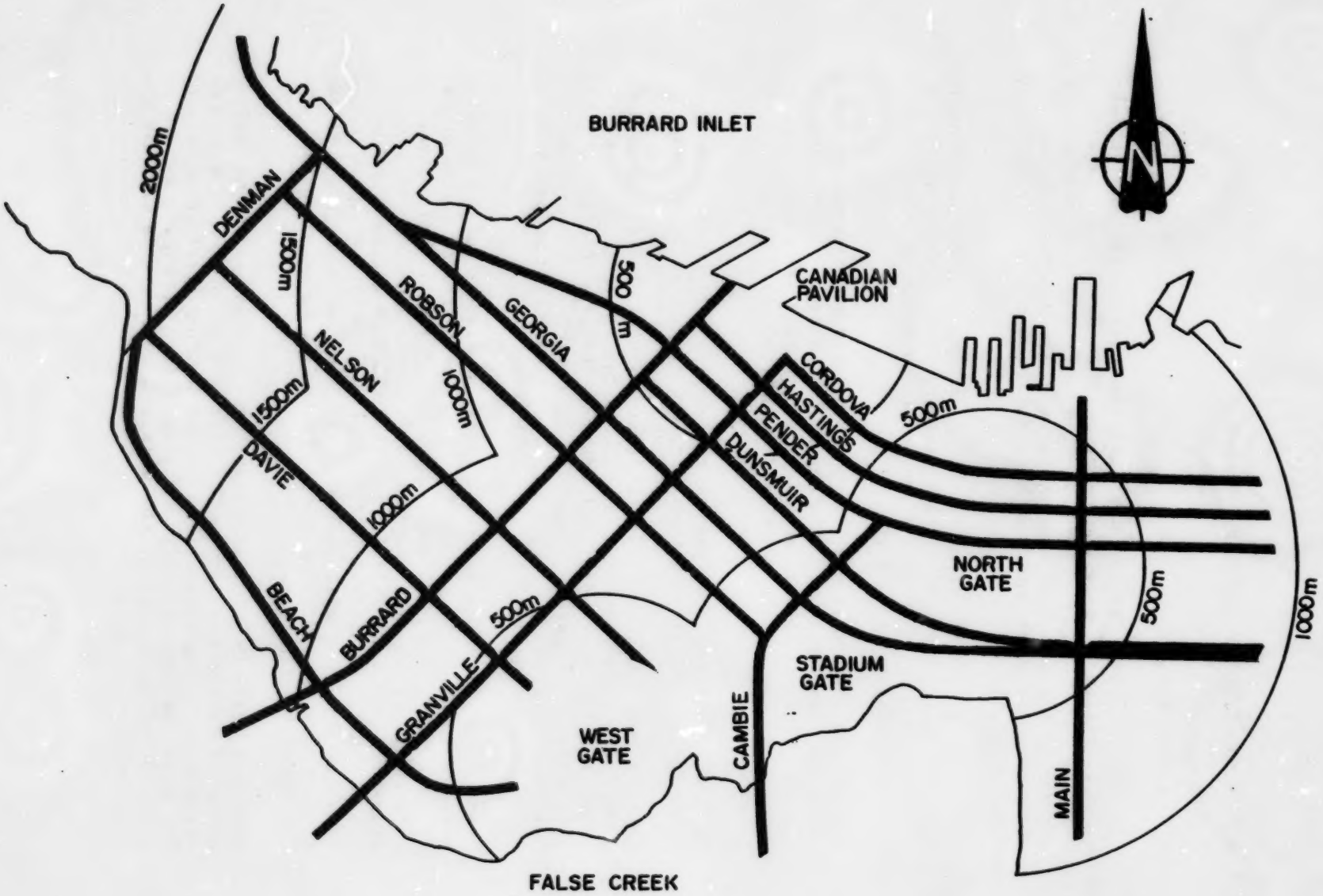

FIGURE 5-1

SCHEMATIC OF WALKING DISTANCES

ALRT: The ALRT. which is a component of the transit service, is identified here as an access mode serving the Kingsway corridor to New Westminster. The amount of EXPO 86 visitors outside the immediate ALRT catchment area that will use the ALRT as an access mode depends on the availability and co-ordination of the feeder bus system and the park and ride facilities. The EXPO 86 visitors using the ALRT. however. are anticipated to use the East Gate or the Stadium gate. Up to 15% of the ALRT access mode visitors are anticipated to use the Canadian Pavilion gate at the Waterfront Station.

The ALRT will also be used as an internal link between the Canadian Pavilion and the mainsite at False Creek. A dedicated four car train is anticipated to run on a four minute headway with bonded platforms and entrances. The characteristics of this link will be discussed in later sections. This section of the access modes will discuss the ALRT service external to the exposition.

Others: Access modes that are applicable to other gates but not applicable to the Canadian Pavilion are included in OTHERS. This includes air. rail. inter-city bus and marine.

The access modal share and their corresponding gate distributions are summarised in Table 5-1. Modes shown under OTHERS are not applicable to the Canadian Pavilion which includes rail, intercity bus, marine and air.

Cruise ship passengers that are anticipated to use Canada Place facilities may have their schedule arranged to visit EXPO 86 (or Canada Pavilion). This will depend on the cruise ship schedules, such that passengers may arrive Vancouver in the morning, check in their luggage, then allow some time to visit the Canadian Pavilion and EXPO main site. They may then board the cruise ship in the evening without having to stay overnight in Vancouver. This could be done twice per passenger. once on their way to board the ship and once when they leave the ship. The number of cruise ship passengers that visit EXPO will depend on cruise ship companies permitting this arrangement. Cruise ship passengers have not been included in the following estimates and are not considered significant.

5.2 Arrival and Departure Rates

The arrival and departure rates at the Canadian Pavilion gate are assumed to have the same pattern as the other EXPO 86 gates. The latest arrival and departure rates forecast by EXPO 86 Marketing Department have a peak hour of 20% of daily total visitors and a 70% peak accumulation In-Expo crowd between 1500 and 1700 h.

ACCESS MODES	Auto	Taxi	Shuttle	ALRT	Bus	W & C	Others	Total
Modal share to EXPO, %	43	5	5	13	12	14	8	100%
% of modal share at C.P. gate	25	25	25	15	25	15	0	
Modal share @ C.P.gate. % of daily visitors	10.8	1.3	1.3	2.0	3.0	2.1	0	20.5%

TABLE 5-1 - ACCESS MODAL SHARE AND GATE DISTRIBUTION THE CANADIAN PAVILION

The forecast by Expo 86 is somewhat different than that of those assumed for earlier works which forecast a peak hour volume in a weekend day to be 15% of daily total and a similar 70% In-Expo crowd at about 1700 h. In this review, those forecasts derived by the ACCESS PLAN REVIEW FOR EXPO 86 will be used and are shown in Figure 5-2.

The peak arrival rate is in the weekend at about 1200 h to 1400 h at 15% per peak hour of design day visitations. The peak departure rate is forecast to occur in the weekend at about 2200 h at 16% of design day visitations.

5.3 Design Criteria

EXPO 86 also established the following design criteria for a typical design day:

Length of stay: (EXPO Site)	6 hours
Length of Stay: (Canada Pavilion)	2 to 5 hour range
Design day volumes:	125,000 persons (previous work : 120,400 persons)
Operating hours:	1000 h to 2400 h

SOURCE: Access Plan Review, EXPO 86

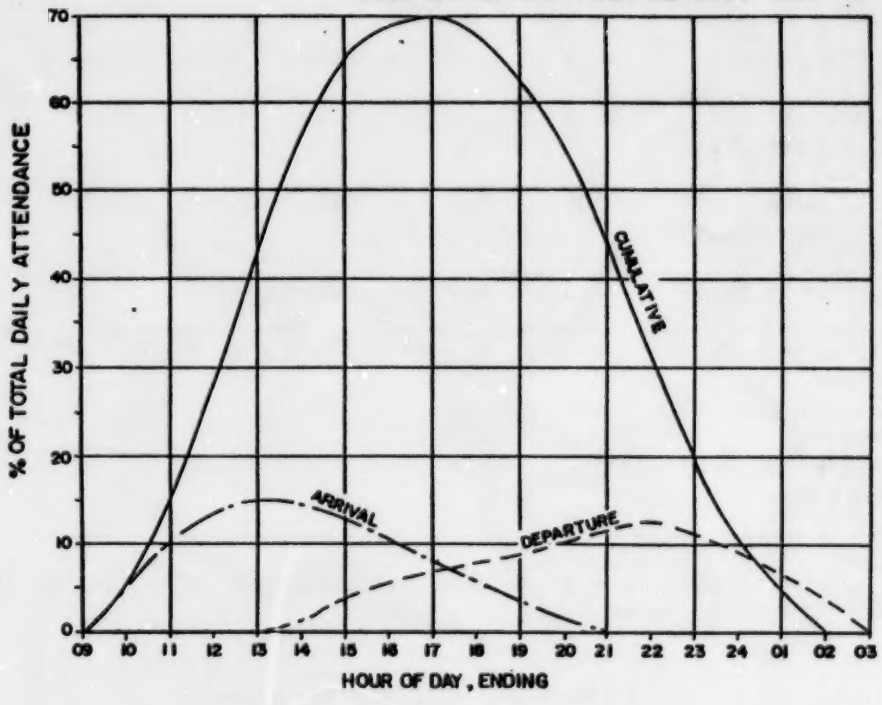

FIGURE 5-2

EXPO '86 ARRIVAL and DEPARTURE RATES

5.4 Design Volumes

The design access mode volumes are forecast with assumed occupancy rates shown in Table 5-2. A high occupancy rate for taxi was assumed. In the over all assumption of access modes, taxi will be competing with shuttle bus. Depending on the fare charged by the shuttle bus, a group of visitors would very likely use taxi rather than the shuttle bus because of the unit economy per passenger ride. Small groups, especially less than three perople, would tend to use the shuttle bus because the total out of pocket cost for the group is lowered.

ACCESS MMODES	Auto	Taxi	Shuttle	ALRT	Bus	W & C
Modal share @ C.P. gate, %	10.8	1.3	1.3	2.0	3.0	2.1
C.P. Gate person-trips*	13,500	1,630	1,630	2,500	3,750	2,600
Occupancy rate	3.5	4.0	20	500	50	1
Daily Volumes	3,860	410	80	5	75	2,600
Peak Hr Arrival volume	580	62	12	.75	11	390
Peak Hr Departure volume	580	66	13	.80	12	420

* Total visitors using the Canadian Pavilion gate is estimated at 25,610 persons (20.5% of total design day visits).

TABLE 5-2 - ACCESS MODE VOLUMES
THE CANADIAN PAVILION

The design day volume of visits to the Canadian Pavilion is forecast to be 31,300 persons. This volume comprises both those who enter at the Canadian Pavilion Gate and those who come from the EXPO 86 mainsite at False Creek. The hourly arrival volumes are shown in Figure 5-3.

Hour	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
Volume	0	1560	3130	4060	4670	4380	4060	3130	2500	1880	1250	630

TABLE 5-3
CANADIAN PAVILION ARRIVAL VOLUMES

5.5 Loading and Unloading Requirements

The time required for loading and unloading for visitors for the various modes are identified as follows.

a. Automobile drop off. average loading time of 1 minute

b. Taxi & limousine: average waiting time of 2 minutes

c. Shuttle bus: average loading and unloading time of 5 minutes

d. Handicapped facility: 10 minutes

The loading and unloading requirements were then forecast based on the peak hour mode volumes forecast by the above criteria and are summarised in Table 5-4.

ACCESS MODES	Auto	Taxi	Shuttle	ALRT	Bus *	W & C
Daily Volumes	3,860	410	80	5	75	2,600
Peak Hr Arrival	580	62	12	.75	11	390
Loading req't No. of spaces	10	2	1	0	0	0
Handicap transit	one space					

* Bus transit service plan is not available at this time.

TABLE 5-4
LOADING AND UNLOADING REQUIREMENTS

5.6 STORAGE REQUIREMENTS

The relevant modes under review for storage are for automobile and bicycle. Other modes are considered for loading and unloading only as described in previous Sections.

5.6.1 Automobiles

The duration of stay at the Canadian Pavilion is assumed to range from 2 to 5 hours. It was found that storage requirement for automobile will be the same regardless of the duration of stay. As the duration of stay becomes closer to 2 hours, the function of the Canadian Pavilion is considered as an extension of the EXPO main site. Visitors to Canada Pavilion will tend to assume the duration of stay of the main site (6 hours). The accumulation of automobiles will then follow the accumulation of the in-EXPO crowd pattern which has a peak of 70% of daily attendance. The storage requirement for automobiles associated with the Canadian Pavilion is therefore estimated to be 2,700, spaces.

As the duration of stay approaches to 5 hours, the visitors will tend to stay at the Canadian Pavilion as one visit (without visiting the mainsite in the same day). If this happens, there will be no discernable effects on the number of parking spaces required as compared to 2,700 spaces.

Regardless the duration of stay, the parking requirement will be about 2,700 spaces.

5.6.2 Bicyle

While it is difficult to forecast the number of bicycles to the Canadian Pavilion, the bicycle mode will be considered as part of the walk mode. The bicycle mode, however, is not considered significant since most of the visitors are forecast to be in family groups. The time and energy required to spend on the site will be tiring (duration of stay 2 to 5 hours) and will discourage cycling, especially for family groups. Also the Canadian Pavilion gate attracts mainly those visitors from the downtown hotel areas. Bicycle use is not considered popular with this segment of visitors. For design purposes, 3% of the walk mode could be assumed as cycle mode for this gate. The accumulation pattern will be similar to that of the automobile storage and a total of 55 storage spaces is forecast to be required.

6.0 ON-SITE CROWD

6.0 ON-SITE CROWD

Visitor accumulation in the Canadian Pavilion is a functOon of the arrival and departure rates and the duration of stay. Assuming that the arrival and departure rates at the Canadian Pavilion are that of EXPO 86 as described in other sections, the duration of stay will influence the accumulated on-site crowd.

The duration of stay has been assumed to range from two to five hours. With a short duration of stay, Canadian Pavilion will be anticipated to function as an integral part of EXPO 86 similar to other pavilions on the mainsite. The movements between EXPO and Canadian Pavilion will be similar to that of other major pavilions. The interaction between these two sites has been described by previous work done by Michael M. Ross & Associates Ltd. The interaction between them has been estimated at about 6,000 person per hour per peak direction.

With this short duration of stay, the ON-SITE crowd is forecast at about 10,000 persons (Figure 6-1). Given the arrival and departure rates, shorter duration of stay will yield a lower accumulated on-site crowd.

As the duration of stay increases towards five hours, the Canadian Pavilion is anticipated to function as a separate part of EXPO. Such duration of stay will attract visitors to spend a major part of the day at the Canadian Pavilion and would very likely result in separate visits from the EXPO site. Given the same arrival and departure rates, the five hour duration of stay is forecast to yield an on-site crowd of about 21,000 persons.

There has been some concern regarding fire regulations which may govern the permissable maximum number of the on-site crowd. During the decision making process for the duration of stay, the fire marshall should be consulted.

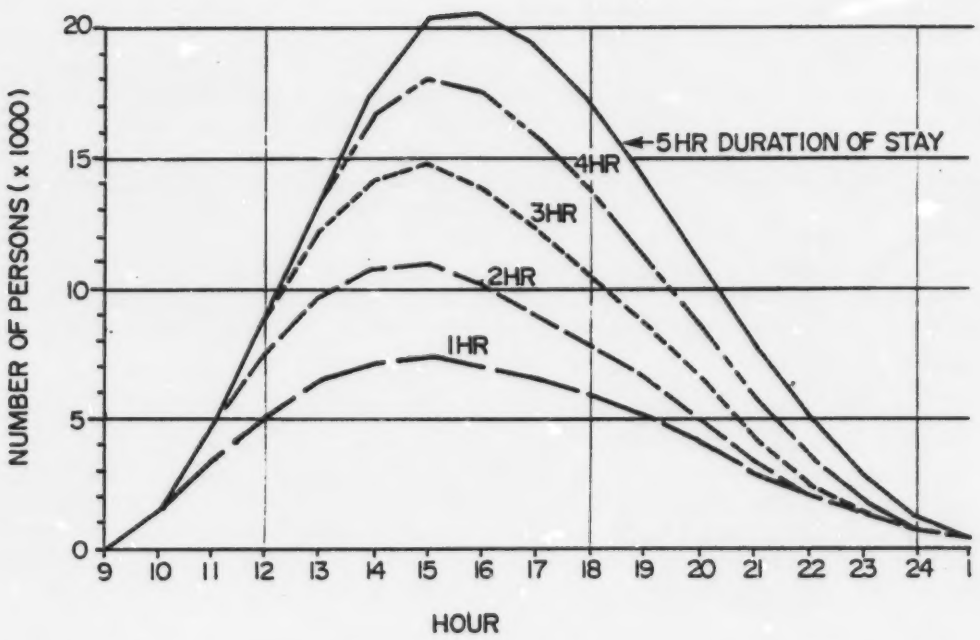

FIGURE 6-1

ACCUMULATION OF ON-SITE CROWD

7.0 PEDESTRIAN MOVEMENTS and TECHNOLOGY

7.0 PEDESTRIAN MOVEMENTS & TECHNOLOGY

There is a planned pedestrian connection between the street level exit of the proposed bonded link at the Waterfront Station of the ALRT and the entrance of Canadian Pavilion. The objective of the connection is to demonstrate Canadian technology in people-moving systems. The connection is about 200 metres in length and is confined to the pedestrian sidewalk on the street level (Figure 7-1).

There are several people-moving technologies available. But the selection criteria are that the construction and layout of the systems do not substantially reduce the pedestrian moving capacity of the sidewlk, and it should take not more than one-third of the width of the sidewalk. If it is for demonstration of Canadian technology, the capacity of the system is not considered to be a major selection criterion. The system layout, its loading and unloading characteristics, and its operations should be integrated with the ALRT people moving system.

Some available systems currently of interest are:

SailRail: A vehicle for four to six people with five to ten vehicles to form a train. The system is being developed by UTDC and is a Canadian Product. The system operates on compliant air bearing and linear induction motor propulson. A preliminary alignment is shown in Figure 7-1. However, subsequent investigation showed that structural consideration has precluded this option.

TRAX: Accelerated moving walkway from France. A system based on conveyor belt concept.

Dunlop Speedway: Accelerated moving walkway from United Kingdom. A system based on conveuor belt conceept.

Boeing High Speed Moving Walkway: An American system under development.

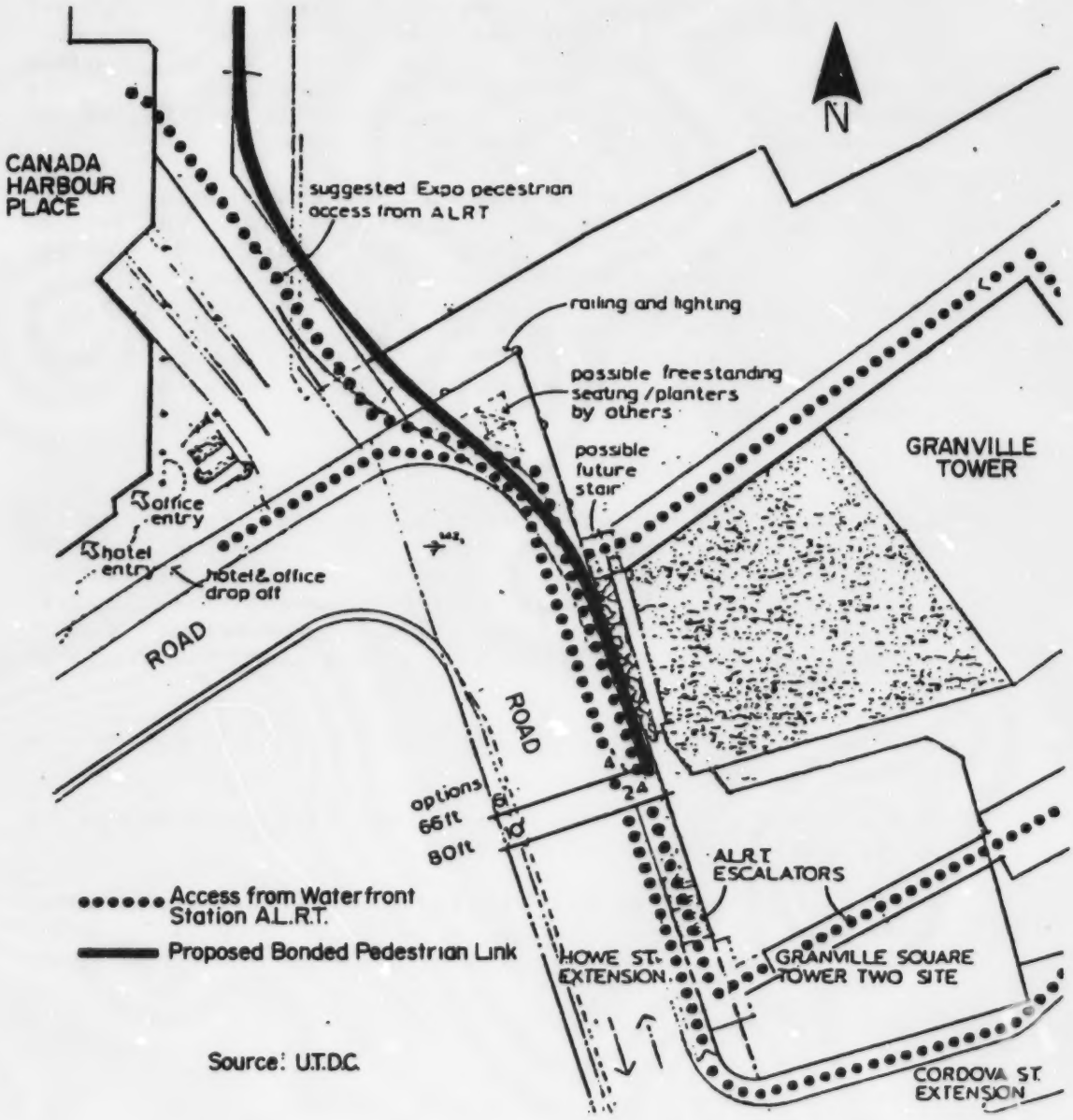

FIGURE 7-1

PEDESTRIAN MOVEMENT LINK

8.0 THE. CANADIAN PAVILION–EXPO LINK

8.0 THE CANADIAN PAVILION - EXPO LINK

8.1 Link Volumes

The successful operation of the Canadian Pavilion as part of EXPO requires an efficient and attractive link between the two sites. It has been anticipated that a dedicated train on the ALRT link will connect the Waterfront Station and the Stadium Station. The link will have the following characteristics:

a. a four car ALRT to be run on a four minute headway with a capacity of 4,500 passengers per peak hour per direction. Additional cars may be added if they are available to increase capacity.

b. the link will be separated from the regular ALRT movements to allow for re-entry.

The link volume will vary with different durations of stay. When the duration of stay is short (such as two hours), the link volume agrees with that forecast by Mr. M. M. Ross.

When the duration of stay approaches to that of EXPO (five hours), the link will be anticipated to function as a transportation link for visitors using the gates at the EXPO site but whose destination is the Canadian Pavilion. It is anticipated that these visitors will enter EXPO at one of the four gates at the mainsite. then board the ALRT link without spending time in the mainsite (e.g. a separate trip to CHP for a day). After spending five hours at the Canadian Pavilion, 75% of these visitors are anticipated to return to the mainsite for departure. This assumes the transportation management policy of specific modes at specific gates. It was further assumed that, with a penetration rate of 4 times, 25% of the visitors attending EXPO will visit the Canadian Pavilion at any given day. The link volume is forecast at about 4,000 per peak hour per direction (Table 8-1). The hourly volumes are shown in Figures 8-1 and 8-2.

To complement transportation capacity in the ALRT link and in order to ensure there is a good and convenient connection between the two sites, a secondary link is recommended. The secondary link connecting the West Gate and the Canadian Pavilion in the form of a shuttle vehicle would attract visitors to the Canadian Pavilion directly from the major pavilions located on the west portion of the False creek site. Sample technology for shuttle vehicles are conventional 12 seat van, small buses similar to the airport shuttle, innovative electric cars, articulated or double decker buses. This shuttle link could also be used as a contingency plan (subject to capacity constraints) in case the ALRT fails to operate. The details and demand of this link should be further explored. Once the shuttle equipment is selected, the link should be studied for capacity, demand and routing.

Duration of stay	Peak hour volumes CHP to EXPO	EXPO to CHP
1 hrs	5,500	3,700
2 hrs	5,300	3,700
3 hrs	4,900	3,700
4 hrs	4,400	3,700
5 hrs	4,000	3,700

TABLE 8-1
FORECAST LINK VOLUMES
(PERSONS)

8.2 ALRT Station Crowd Accumulation

Given the arrival and departure rates of the Canadian Pavilion; the ALRT link volume between the two sites is 4500 passengers; and that the link volumes forecast as shown in Table 8-1, there is a spatial requirement at the Waterfront Station for the crowd accumulated when the ALRT capacity is exceeded.

The size of the crowd accumulated at the **Waterfront Station** varies with the duration of stay at the Canadian Pavilion. Visitors wishing to board the ALRT trains to the mainsite are forecast to exceed the trains' capacity at 1300 h for the one and two hours of durations of stay. By the end of 1800 h, the accumulated crowd at the Waterfront Station will be cleared. In addition to the accumulated crowd at this station, there are those visitors arriving and departing the station as carried by the ALRT capacity of 4500 passengers at peak capacity. The size of the accumulated crowds are shown in Table 8-2.

At the **Stadium Station**, no crowd is forecast to be accumulated. The visitors taking the ALRT to the Canadian Pavilion site will be within the capacity of the ALRT.

Hour ending	DURATION OF STAY, HOURS one	two	three	four	five
1300	800	250	0	0	0
1400	1,800	860	50	0	0
1500	2,400	1,700	500	0	0
1600	2,200	1,700	700	0	0
1700	1,100	1,100	340	0	0

TABLE 8-2
HOURLY ACCUMULATED CROWD EXCEEDING ALRT CAPACITY AT WATERFRONT STATION

8.3 Station Space Requirements for Accumulated Crowds

The spacial requirements for the accumulated crowd will vary with different durations of stay. On a comfortable level of service of C-D, the area requirement per person is assumed to be one square metre. The space requirement for a duration of stay of three hours is shown in Table 8-3.

Station	Average Link Volume Per Train	Accumulated Volume per Hour	Space Requirement square metres
Waterfront	300 persons	700 persons	1,000
Stadium	250 persons	0	250

TABLE 8-3
SPACE REQUIREMENT FOR A THREE HOUR DURATION OF STAY BASED ON ONE SQUARE METRE PER PERSON

8.4 Contingency Plan

A contingency plan should be developed in the event that the ALRT link fails to operate during the period of the exhibition. In this analysis and forecast, the majority of visitors to the Canadian Pavilion will arrive at the gates at the mainsite and will be dependent on the transportation link to the Canadian Pavilion. This scenario applies both to short and long durations of stay. The efficiency of the contingency plan will depend on the overall transportation management strategy for EXPO 86 and available transportation modes.

There is a need to develop a transportation manual to specify operation procedures if such an event occurrs. The method of moving visitors from one site to another at short notice and the pedestrian impacts on streets (should the visitors choose to walk from one site to another) should be studied.

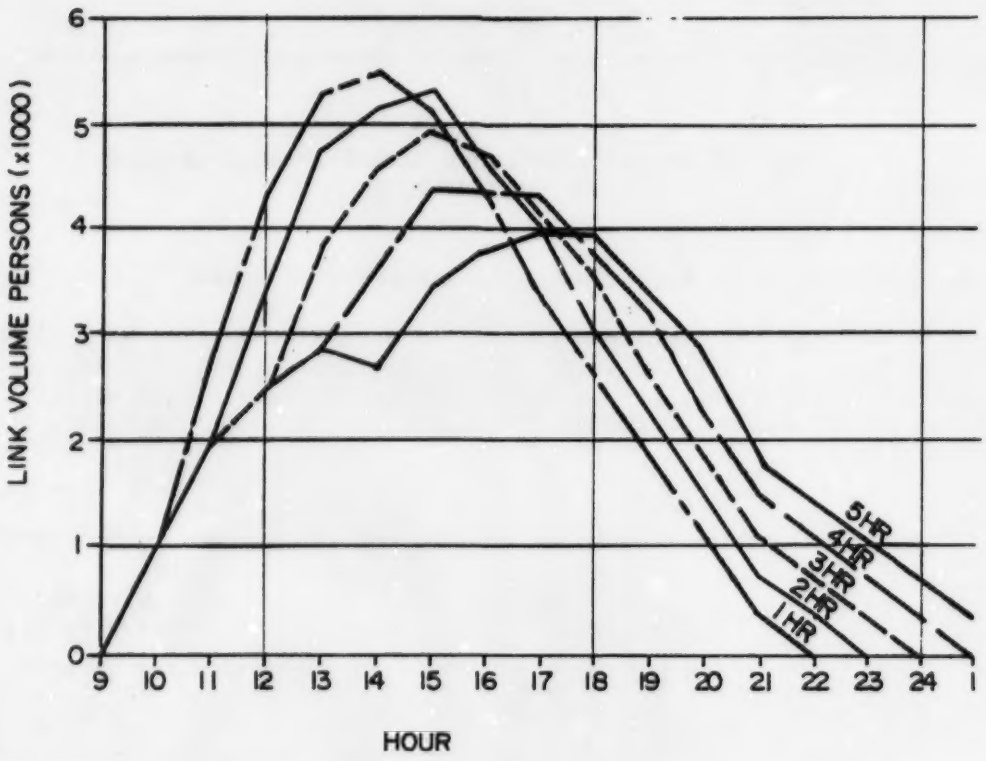

FIGURE 8-1

ALRT LINK VOLUMES with VARIOUS DURATIONS of STAY
CANADIAN PAVILION TO EXPO

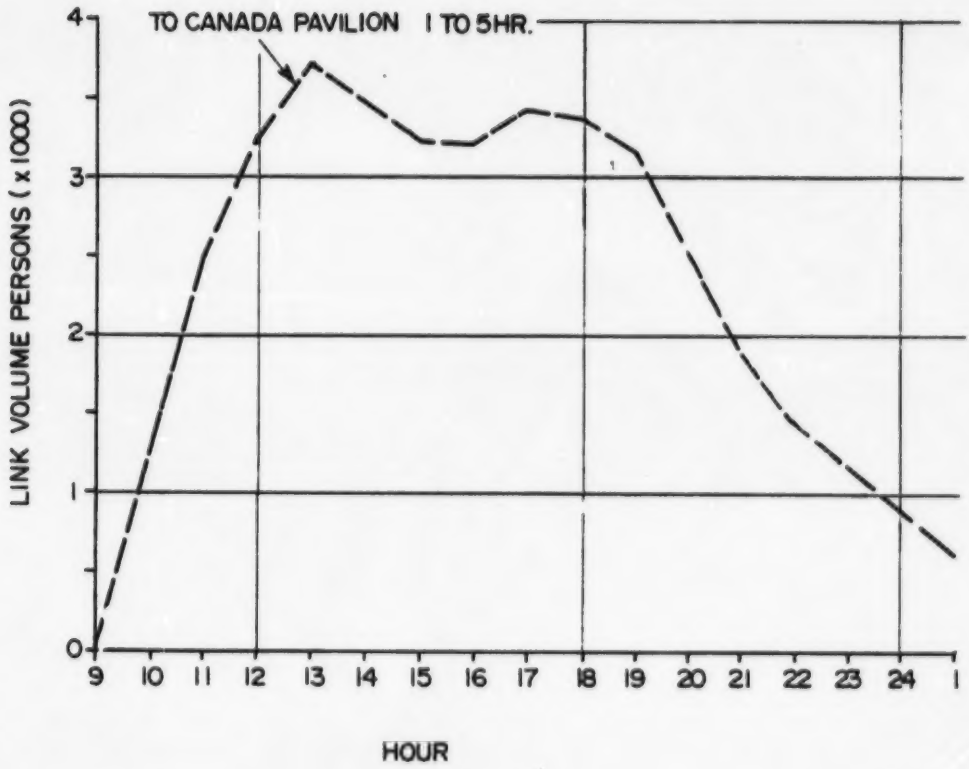

FIGURE 8-2

ALRT LINK VOLUMES with VARIOUS DURATIONS of STAY EXPO to CANADIAN PAVILION

9.0 ACCESS MANAGEMENT STRATEGY

9.0 ACCESS MANAGEMENT STRATEGY

The study findings indicated five major issues to have substantial impacts to the design of the Canadian Pavilion, as follows.

9.1 The Transportation Access

The loading and unloading requirements define the gate and entrance design details so that they can be incorporated in the layout. This is an iterative process which requires the co-operation of the designers of the gates and entrances and the transportation inputs to ensure access and circulation efficiencies. Expo 86 is now in the process of formulating off-site transportation impact review procedures and the Canadian Pavilion access requirements should also be incorporated in their review.

9.2 On-site Crowd

The on-site crowd varies with the duration of stay at the Canadian pavilion. The duration of stay should be established to meet the fire code requirements. Operational procedures should be established to handle any overflow. This can be achieved by directing visitors to the ALRT link to the mainsite without allowing entrance to Canadian Pavilion. The designers of the gate and entrance should include this as a requirement.

9.3 The Link

The planned ALRT link may not have adequate capacity to carry the peak hour volumes assuming the durations of stay are less than three hours. During the peak hour, and with a duration of stay of two hours or less, the peak direction volume was forecast to be about 5,500 persons. However, the capacity of the dedicated ALRT link is 4,500 persons per hour. Therefore it is advisable to develop an alternate link both to complement ALRT capacity and to have as a fail-safe support to the ALRT.

Another issue is the alternative method to carry the visitors in the event that the ALRT link failed to operate. A contingency plan should be developed to establish procedures to handle the situation. This plan should be developed in consultation with EXPO 86, the City, the Police and B.C. Transit.

A secondary link connecting the Canadian Pavilion to either the Stadium Station or the West Gate is therefore recommended .

9.4 Parking

Parking on the pier will not be adequate to accommodate the forecast automobile mode volumes. It is understood that some of the parking spaces will be reserved for hotel and office use. However, parking will not be anticipated to be a problem in weekends. The Canadian Pavilion should have adequate and easily identifiable signing systems to direct visitors to the site. EXPO 86 is currently reviewing their parking inventory and policies. Canada Place should review their parking availability around the site when such information is available.

9.5 Access Plan for Canada Place

It should be noted that this analysis has not included the hotel and office facilities. It is necessary to evaluate the requirements of the Canadian Pavilion in conjunction with those of the hotel and office facilities. The critical elements of these facilities, such as shared parking arrangements where applicable, parking facility management to encourage efficient parking with an optimised number of parking spaces and capital investment; the courier lay-bys; taxis and loading for restaurants and cruise ships (for goods as well as people); airport and other shuttle buses (not directly related to cruise ships), parking and circulation. These should be reviewed and included in the overall design of the access to the Canadian Pavilion as well as the Canada Harbour Place.

APPENDICES

APPENDIX I

FORECAST DAILY ATTENDANCE

July 20, 1983
Rev. 7/2_ 83

EXPO 86

MAY ATTENDANCE PROJECTION
BASED ON 16,500,000 TOTAL

Date		Day	Attendance Projection	Hours	Comments
Apr.	27	Sunday			OPERATIONS CHECK
	28	Monday			OPERATIONS CHECK
	29	Tuesday			OPERATIONS CHECK
	30	Wednesday			OPERATIONS CHECK
May	1	Thursday	-		OPERATIONS CHECK
	2	Friday	115,500	10-12	OPENING DAY
	3	Saturday	115,500	10-12	First weekend
	4	Sunday	84,150	10-12	
	5	Monday	64,350	10-12	
	6	Tuesday	69,300	10-12	
	7	Wednesday	64,350	10-12	
	8	Thursday	59,400	10-12	
	9	Friday	64,350	10-12	
	10	Saturday	89,100	10-12	
	11	Sunday	84,150	10-12	
	12	Monday	64,350	10-12	
	13	Tuesday	69,300	10-12	
	14	Wednesday	64,350	10-12	
	15	Thursday	59,400	10-12	
	16	Friday	64,350	10-12	
	17	Saturday	89,100	10-12	
	18	Sunday	100,980	10-12	
	19	Monday	77,220	10-12	Queen's Birthday
	20	Tuesday	83,160	10-12	
	21	Wednesday	77,220	10-12	
	22	Thursday	71,280	10-12	
	23	Friday	77,220	10-12	
	24	Saturday	106,920	10-12	
	25	Sunday	112,200	10-12	
	26	Monday	85,800	10-12	
	27	Tuesday	92,400	10-12	
	28	Wednesday	85,800	10-12	
	29	Thursday	79,200	10-12	
	30	Friday	85,800	10-12	
	31	Saturday	118,800	10-12	
TOTALS		30	2,475,000		

July 20, 1983
Rev. 7/22/83

EXPO 86

AUGUST ATTENDANCE PROJECTION
BASED ON 16,500,000 TOTAL

Date		Day	Attendance Projection	Hours	Comments
Aug.	1	Friday	97,000	10-12	
	2	Saturday	133,000	10-12	
	3	Sunday	118,000	10-12	
	4	Monday	90,000	10-12	
	5	Tuesday	97,000	10-12	
	6	Wednesday	90,000	10-12	
	7	Thursday	83,000	10-12	
	8	Friday	90,000	10-12	
	9	Saturday	125,000	10-12	
	10	Sunday	115,000	10-12	
	11	Monday	88,000	10-12	
	12	Tuesday	95,000	10-12	
	13	Wednesday	88,000	10-12	
	14	Thursday	81,000	10-12	
	15	Friday	88,000	10-12	
	16	Saturday	122,000	10-12	
	17	Sunday	104,000	10-12	
	18	Monday	79,000	10-12	
	19	Tuesday	85,000	10-12	
	20	Wednesday	79,000	10-12	
	21	Thursday	73,000	10-12	
	22	Friday	79,000	10-12	
	23	Saturday	111,000	10-12	
	24	Sunday	98,000	10-12	
	25	Monday	75,000	10-12	
	26	Tuesday	81,000	10-12	
	27	Wednesday	75,000	10-12	
	28	Thursday	69,000	10-12	
	29	Friday	75,000	10-12	
	30	Saturday	105,000	10-12	
	31	Sunday	84,000	10-12	
TOTALS		31	2,872,000		

July 20, 1983
Rev. 7/22/83

EXPO 86

SEPTEMBER ATTENDANCE PROJECTION
BASED ON 16,500,000 TOTAL

Date		Day	Attendance Projection	Hours	Comments
Sep.	1	Monday	64,000	10-12	
	2	Tuesday	70,000	10-12	
	3	Wednesday	64,000	10-12	
	4	Thursday	59,000	10-12	
	5	Friday	64,000	10-12	
	6	Saturday	90,000	10-12	
	7	Sunday	84,000	10-12	
	8	Monday	64,000	10-12	
	9	Tuesday	70,000	10-12	
	10	Wednesday	64,000	10-12	
	11	Thursday	59,000	10-12	
	12	Friday	64,000	10-12	
	13	Saturday	90,000	10-12	
	14	Sunday	84,000	10-12	
	15	Monday	64,000	10-12	
	16	Tuesday	70,000	10-12	
	17	Wednesday	64,000	10-12	
	18	Thursday	59,000	10-12	
	19	Friday	64,000	10-12	
	20	Saturday	90,000	10-12	
	21	Sunday	84,000	10-12	
	22	Monday	64,000	10-12	
	23	Tuesday	70,000	10-12	
	24	Wednesday	64,000	10-12	
	25	Thursday	59,000	10-12	
	26	Friday	64,000	10-12	
	27	Saturday	90,000	10-12	
	28	Sunday	84,000	10-12	
	29	Monday	64,000	10-12	
	30	Tuesday	70,000	10-12	
TOTALS		30	2,114,000		

July 20, [redacted]
Rev. 7/2[redacted], 83

EXPO 86

OCTOBER ATTENDANCE PROJECTION
BASED ON 16,500,000 TOTAL

Date		Day	Attendance Projection	Hours	Comments
Oct.	1	Wednesday	64,000	10-12	
	2	Thursday	59,000	10-12	
	3	Friday	64,000	10-12	
	4	Saturday	90,000	10-12	
	5	Sunday	84,000	10-12	
	6	Monday	64,000	10-12	
	7	Tuesday	70,000	10-12	
	8	Wednesday	64,000	10-12	
	9	Thursday	59,000	10-12	
	10	Friday	64,000	10-12	
	11	Saturday	90,000	10-12	
	12	Sunday	84,000	10-12	
	13	Monday	64,000	10-12	
	14	Tuesday	70,000	10-12	
	15	Wednesday	64,000	10-12	
	16	Thursday	59,000	10-12	
	17	Friday	64,000	10-12	
	18	Saturday	90,000	10-12	
	19	Sunday	84,000	10-12	
	20	Monday	64,000	10-12	
	21	Tuesday	74,000	10-12	
	22	Wednesday	69,000	10-12	
	23	Thursday	64,000	10-12	
	24	Friday	69,000	10-12	
	25	Saturday	95,000	10-12	
	26	Sunday	89,000	10-12	
	27	Monday	69,000	10-12	
	28	Tuesday	75,000	10-12	
	29	Wednesday	69,000	10-12	
	30	Thursday	64,000	10-12	
	31	Friday	103,000	10-12	Closing Day
TOTALS		31	2,255,000		

APPENDIX II

ORIGINATING MODAL VOLUMES IN PERSON TRIPS

FORECAST OF AIR ORIGINATING MODE
BASED ON CURRENT AWARENESS

DATE: 1983 07 26 DISC 5B FILE:CPPVISIT

	MARKET	NO OF HSE HOLD X 1000	AVG NO OF RESPND MEM VISITING	PENE RATE	% LIKELY TO VISIT	ESTIMATED VISITS X 1000	% OF TOTAL VISITS	NO OF VISITORS X 1000	MODAL SHARE %	PERSON
	GVRD	477	2.72	4.93	68.30	4,369	29.5%	886	0	0
	CFRD	55	2.72	4.83	14.10	102	0.7%	21	0	0
	DEW/ALL	38	2.72	4.83	14.10	70	0.5%	15	0	0
	FRAS/CHEAM	34	2.72	4.83	14.10	63	0.4%	13	0	0
	SUBSHIRE	9	2.72	4.83	14.10	17	0.1%	3	0	0
	CAPITAL	95	2.70	4.45	44.50	508	3.4%	114	5	5,707
	REM VAN IS	128	2.70	4.93	14.10	240	1.6%	49	5	2,436
	REM BC	162	2.72	4.93	14.10	306	2.1%	62	10	6,213
TOT B.C.		998	2.72	4.82	24.68	5,675	38.3%	1,163	1.23%	14,357
	ALTA URB	443	2.89	4.75	11.90	724	4.9%	152	30	45,706
	ALTA RUR	323	2.89	4.75	2.98	132	0.9%	28	30	8,345
	MAN/SAS UR	332	2.53	5.86	5.60	276	1.9%	47	40	18,815
	MAN/SAS RU	367	2.53	5.86	1.40	76	0.5%	13	40	5,200
	ONT URB	1,969	2.71	4.63	7.30	1,804	12.2%	390	80	311,622
	ONT RUR	1,032	2.71	4.63	1.83	237	1.6%	51	80	40,944
	P Q URB	1,398	2.69	8.66	3.00	977	6.6%	113	80	90,255
	P Q RUR	775	2.69	8.66	0.75	135	0.9%	16	80	12,509
	MARI URB	131	2.26	6.78	6.50	130	0.9%	19	85	16,357
	MARI RUR	543	2.26	6.78	1.63	136	0.9%	20	85	17,003
	CALI URB	8,082	2.21	5.38	1.20	1,153	7.8%	214	50	107,167
	CALI RUR	548	2.21	5.38	0.30	20	0.1%	4	50	1,817
	WASH URB	920	2.79	4.24	12.00	1,306	8.8%	308	6	18,481
	WASH RUR	620	2.79	4.24	3.00	220	1.5%	52	6	3,114
	REM OF US	76	3.00	3.50	100.00	798	5.4%	228	100	228,000
	OFFSHORE	250	2.00	2.00	100.00	1,000	6.8%	500	100	500,000
TOT OR AVG		18,807	2.62	5.18	19.26	14,798	100.0%	3,318	43.4%	1,439,690

MON DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.23	0.25	0.16	0.11
MONTH	143,969	215,953	331,129	359,922	230,350	158,366
WEEK	35,992	53,988	82,782	89,981	57,588	39,591
***WEEKEND						
WK END DAY	8,998	13,497	20,696	22,495	14,397	9,898
***WEEKDAY						
WK DAY	4,319	6,479	9,934	10,798	6,911	4,751

FORECAST OF AIR ORIGINATING MODE
THIS BASED ON EXTENSIVE AWARENESS

DATE: 1983 07 26 DISC5 FILE:CPAIR02

	MARKET	NO OF HSE HOLD X 1000	AVG NO OF HSEHD MEM VISITING	PENE RATE	% LIKELY TO VISIT	ESTIMATED VISITS X 1000	% OF TOTAL VISITS	NO OF VISITORS X 1000	MODAL SHARE %	PERSON
	GVRD	477	2.75	4.83	72.60	4,600	19.1%	952	0	0
	CFRD	55	2.75	4.83	16.90	123	0.5%	26	0	0
	DEV/ALL	38	2.75	4.83	16.90	85	0.4%	18	0	0
	FRAS/CHEAM	34	2.75	4.83	16.90	76	0.3%	16	0	0
	SUNSHINE	9	2.75	4.83	16.90	20	0.1%	4	0	0
	CAPITAL	95	2.66	4.83	49.50	604	2.5%	125	5	6,254
	REM VAN IS	128	2.75	4.83	16.90	287	1.2%	59	5	2,974
	REM BC	162	2.75	4.83	16.90	364	1.5%	75	10	7,529
TOT B.C.		998	2.74	4.83	27.94	6,160	25.6%	1,275	1.31	16,758
	ALTA URB	443	2.78	4.70	19.50	1,129	4.7%	240	30	72,045
	ALTA RUR	323	2.78	4.70	4.88	206	0.9%	44	30	13,146
	MAN/SAS UR	332	2.72	6.05	9.60	524	2.2%	87	40	34,677
	MAN/SAS RU	367	2.72	6.05	2.40	145	0.6%	24	40	9,583
	ONT URB	1,969	2.71	4.50	9.50	2,281	9.5%	507	80	405,535
	ONT RUR	1,032	2.71	4.50	2.38	300	1.2%	67	80	53,250
	P Q URB	1,398	2.70	7.99	6.40	1,930	8.0%	242	80	193,260
	P Q RUR	775	2.70	7.99	1.60	268	1.1%	33	80	26,784
	MARI URB	131	2.39	6.47	8.00	162	0.7%	25	85	21,290
	MARI RUR	543	2.39	6.47	2.00	168	0.7%	26	85	22,062
	CALI URB	8,082	2.44	4.99	4.60	4,527	18.8%	907	50	453,562
	CALI RUR	548	2.44	4.99	1.15	77	0.3%	15	50	7,688
	WASH URB	920	2.92	3.45	25.50	2,363	9.8%	685	6	41,102
	WASH RUR	620	2.92	3.45	6.38	398	1.7%	116	6	6,930
	REM OF US	76	3.00	3.50	100.00	798	3.3%	228	100	228,000
	OFFSHORE	300	2.50	3.50	100.00	2,625	10.9%	750	100	750,000
TOT OR AVG		18,857	2.70	5.07	22.21	24,061	100.0%	5,271	44.7%	2,355,671

NON DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.23	0.25	0.16	0.11
MONTH	235,567	353,351	541,804	588,918	376,907	259,124
WEEK	58,892	88,338	135,451	147,229	94,227	64,781
***WEEKEND						
WK END DAY	14,723	22,084	33,863	36,807	23,557	16,195
***WEEKDAY						
WEEKDAY	7,067	10,601	16,254	17,668	11,307	7,774

ORIGINATING AUTO MODE
THIS IS BASED ON CURRENT(1983) AWARENESS

DATE: 1983 07 26 DISC5 FILE:ORIAUTO1

	MARKET	NO OF HSE HOLD X 1000	AVG NO OF HSEHD MEM VISITING	PENE RATE	% LIKELY TO VISIT	ESTIMATED VISITS X 1000	% OF TOTAL VISITS	NO OF VISITORS X 1000	MODAL SHARE %	PERSON
	CVRD	477	2.72	4.93	68.30	4,369	29.1%	886	50	443,076
	CFRD	55	2.72	4.83	14.10	102	0.7%	21	60	12,656
	REM/ALL	38	2.72	4.83	14.10	70	0.5%	15	60	8,744
	FRAS/CREAM	34	2.72	4.83	14.10	63	0.4%	13	75	9,780
	SUNSHINE	9	2.72	4.83	14.10	17	0.1%	3	95	3,279
	CAPITAL	95	2.70	4.45	44.50	508	3.4%	114	75	85,607
	REM VAN IS	128	2.70	4.93	14.10	240	1.6%	49	75	36,547
	REM BC	162	2.72	4.93	14.10	306	2.0%	62	70	43,491
TOT B.C.		998	2.72	4.82	24.68	5,675	37.8%	1,163	55.29%	643,180
	ALTA URB	443	2.89	4.75	11.90	724	4.8%	152	60	91,411
	ALTA RUR	323	2.89	4.75	2.98	132	0.9%	28	60	16,690
	NAN/SAS UR	332	2.53	5.86	5.60	276	1.8%	47	50	23,519
	NAN/SAS RU	367	2.53	5.86	1.40	76	0.5%	13	50	6,500
	ONT URB	1,969	2.71	4.63	7.30	1,804	12.0%	390	15	58,429
	ONT RUR	1,032	2.71	4.63	1.83	237	1.6%	51	15	7,677
	P Q URB	1,398	2.69	8.66	3.00	977	6.5%	113	10	11,282
	P Q RUR	775	2.69	8.66	0.75	135	0.9%	16	10	1,564
	MARI URB	131	2.26	6.78	6.50	130	0.9%	19	10	1,924
	MARI RUR	543	2.26	6.78	1.63	136	0.9%	20	10	2,000
	CALI URB	8,082	2.21	5.38	1.20	1,153	7.7%	214	45	96,451
	CALI RUR	548	2.21	5.38	0.30	20	0.1%	4	45	1,635
	WASH URB	920	2.79	4.24	12.00	1,306	8.7%	308	90	277,214
	WASH RUR	620	2.79	4.24	3.00	220	1.5%	52	90	46,705
	REM OF US	76	3.00	3.50	100.00	798	5.3%	228	0	0
	OFFSHORE	300	2.00	2.00	100.00	1,200	8.0%	600	0	0
TOT OR AVG		18,857	2.62	5.18	19.26	14,998	100.0%	3,418	37.6%	1,286,181

MON DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.25	0.25	0.16	0.11
MONTH	128,618	192,927	295,822	321,545	205,789	141,480
WEEK	32,155	48,232	73,955	80,386	51,447	35,370
***WEEKEND						
WK END DAY	8,039	12,058	18,489	20,097	12,862	8,842
***WEEKDAY						
WEEKDAY	3,859	5,788	8,875	9,646	6,174	4,244

ORIGINATING AUTO MODE
THIS BASED ON EXTENSIVE AWARENESS

DATE: 1983 07 26 DISC86 FILE:ORIAUTO2

	MARKET	NO OF RSH HOLD X 1000	AVG NO OF RSHLD MEM VISITING	PENE RATE	% LIKELY TO VISIT	ESTIMATED VISITS X 1000	% OF TOTAL VISITS	NO OF VISITORS X 1000	MODAL SHARE %	PERSON
	GVRD	477	2.75	4.83	72.60	4,600	19.1%	952	50	476,165
	CFRD	55	2.75	4.83	16.90	123	0.5%	26	60	15,337
	DEW/ALL	38	2.75	4.83	16.90	85	0.4%	18	60	10,596
	FRAS/CHEAM	34	2.75	4.83	16.90	76	0.3%	16	75	11,851
	SUNSHINE	9	2.75	4.83	16.90	20	0.1%	4	95	3,974
	CAPITAL	95	2.66	4.83	49.50	604	2.5%	125	75	93,815
	REM VAN IS	128	2.75	4.83	16.90	287	1.2%	59	75	44,616
	REM BC	162	2.75	4.83	16.90	364	1.5%	75	70	52,703
TOT B.C.		998	2.74	4.83	27.94	6,160	25.6%	1,275	55.5%	709,057
	ALTA URB	443	2.78	4.70	19.50	1,129	4.7%	240	60	144,090
	ALTA RUR	323	2.78	4.70	4.88	206	0.9%	44	60	26,292
	MAN/SAS UR	332	2.72	6.05	9.60	524	2.2%	87	50	43,346
	MAN/SAS RU	367	2.72	6.05	2.40	143	0.6%	24	50	11,979
	ONT URB	1,969	2.71	4.50	9.50	2,281	9.5%	507	15	76,038
	ONT RUR	1,032	2.71	4.50	2.38	360	1.2%	67	15	9,984
	P Q URB	1,398	2.70	7.99	6.40	1,930	8.0%	242	10	24,157
	P Q RUR	775	2.70	7.99	1.60	268	1.1%	33	10	3,348
	MARI URB	131	2.39	6.47	8.00	162	0.7%	25	10	2,505
	MARI RUR	543	2.39	6.47	2.00	168	0.7%	26	10	2,596
	CALI URB	8,082	2.44	4.99	4.60	4,527	18.8%	907	45	408,206
	CALI RUR	548	2.44	4.99	1.15	77	0.3%	15	45	6,920
	WASH URB	920	2.92	3.45	25.50	2,363	9.8%	685	90	616,529
	WASH RUR	638	2.92	3.45	6.38	398	1.7%	116	90	103,953
	REM OF US	76	3.00	3.50	100.00	798	3.3%	228	0	0
	OFFSHORE	300	2.50	3.50	100.00	2,625	10.9%	750	0	0
TOT OR AVG		18,857	2.70	5.07	22.21	24,061	100.0%	5,271	41.5%	2,188,998

MON DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.23	0.25	0.16	0.11
MONTH	218,900	328,350	503,470	547,250	350,240	240,790
WEEK	54,725	82,087	125,867	136,812	87,560	60,197
***WEEKEND						
WK END DAY	13,681	20,522	31,467	34,203	21,890	15,049
***WEEKDAY						
WEEKDAY	6,567	9,850	15,104	16,417	10,507	7,224

ORIGINATING RAIL MODE
THIS IS BASED ON CURRENT(1983) AWARENESS

DATE: 1983 07 26 DISC 5B FILE:ORIRAILI

	MARKET	NO OF HSE HOLD X 1000	AVG NO OF NEEDD MEM VISITING	PENE RATE	% LIKELY TO VISIT	ESTIMATED VISITS X 1000	% OF TOTAL VISITS	NO OF VISITORS X 1000	MODAL SHARE %	PERSON
	CVRD	477	2.72	4.93	68.30	4,369	29.1%	886	0	0
	CFRD	55	2.72	4.83	14.10	102	0.7%	21	0	0
	DSW/ALL	38	2.72	4.83	14.10	70	0.5%	15	0	0
	FRAS/CHEAH	34	2.72	4.83	14.10	63	0.4%	13	0	0
	DUNSMUIR	9	2.72	4.83	14.10	17	0.1%	3	0	0
	CAPITAL	95	2.70	4.45	44.50	508	3.4%	114	0	0
	REM VAN IS	128	2.70	4.93	14.10	240	1.6%	49	0	0
	REM BC	162	2.72	4.93	14.10	306	2.0%	62	2	1,243
TOT B.C.		998	2.72	4.82	24.68	5,675	37.8%	1,163	0.1%	1,243
	ALTA URB	443	2.89	4.75	11.90	724	4.8%	152	5	7,618
	ALTA RUR	323	2.89	4.75	2.98	132	0.9%	28	5	1,391
	MAN/SAS UR	332	2.53	5.86	5.60	276	1.8%	47	5	2,352
	MAN/SAS RU	367	2.53	5.86	1.40	76	0.5%	13	5	650
	ONT URB	1,969	2.71	4.63	7.30	1,804	12.0%	390	3	11,686
	ONT RUR	1,032	2.71	4.63	1.83	257	1.6%	51	3	1,535
	P Q URB	1,398	2.69	8.66	3.00	977	6.5%	113	8	9,025
	P Q RUR	775	2.69	8.66	0.75	135	0.9%	16	8	1,251
	MARI URB	131	2.36	6.78	6.50	130	0.9%	19	5	962
	MARI RUR	543	2.26	6.78	1.65	136	0.9%	20	5	1,000
	CALI URB	8,082	2.21	5.38	1.20	1,153	7.7%	214	4	8,573
	CALI RUR	548	2.21	5.38	0.30	20	0.1%	4	4	145
	WASH URB	930	2.79	4.24	12.00	1,306	8.7%	308	1	3,080
	WASH RUR	630	2.79	4.24	3.00	220	1.5%	52	1	519
	REM OF US	76	3.00	3.50	100.00	798	5.3%	228	0	0
	OFFSHORE	300	2.00	2.00	100.00	1,200	8.0%	600	0	0
TOT OR AVG		18,857	2.62	5.18	19.26	14,998	100.0%	3,418	1.5%	51,031

MON DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.23	0.25	0.16	0.11
MONTH	5,103	7,655	11,737	12,758	8,165	5,613
WEEK	1,276	1,914	2,934	3,189	2,041	1,403
***WEEKEND						
WK END DAY	319	478	734	797	510	351
***WEEKDAY						
WEEKDAY	153	230	352	383	245	168

ORIGINATING RAIL MODE
THIS BASED ON EXTENSIVE AWARENESS

DATE: 1983 07 26 DISCS FILE:ORIRAIL2

	MARKET	NO OF HSE HOLD X 1000	AVG NO OF HSEHD MEM VISITING	FERE RATE	% LIKELY TO VISIT	ESTIMATED VISITS X 1000	% OF TOTAL VISITS	NO OF VISITORS X 1000	NODAL SHARE %	PERSON	OCCUP RATE
	CVRD	477	2.75	4.83	72.60	4,600	19.1%	952	0	0	
	CFRD	55	2.75	4.83	16.90	123	0.5%	26	0	0	
	RMR/ALL	38	2.75	4.83	16.90	85	0.4%	18	0	0	
	FRAS/CHEAM	34	2.75	4.83	16.90	76	0.3%	16	0	0	
	SURRRINE	9	2.75	4.83	16.90	20	0.1%	4	0	0	
	CAPITAL	95	2.66	4.83	49.50	604	2.5%	125	0	0	
	RMR VAN IS	128	2.75	4.83	16.90	287	1.2%	59	0	0	
	RMR DC	162	2.75	4.83	16.90	364	1.5%	75	2	1,506	
TOT S.C.		998	2.74	4.83	27.94	6,160	25.6%	1,275	0.25	1,506	0.00
	ALTA URB	443	2.78	4.70	19.58	1,129	4.7%	240	5	12,008	
	ALTA RMR	323	2.78	4.70	4.88	206	0.9%	44	5	2,191	
	RAR/SAS UR	332	2.72	6.05	9.60	524	2.2%	87	5	4,335	
	RAR/SAS RU	367	2.72	6.05	2.40	145	0.6%	24	5	1,198	
	ONT URB	1,969	2.71	4.50	9.50	2,281	9.5%	507	3	15,208	
	ONT RMR	1,032	2.71	4.50	2.38	300	1.2%	67	3	1,997	
	P Q URB	1,398	2.70	7.99	6.40	1,930	8.0%	242	8	19,326	
	P Q RMR	775	2.70	7.99	1.60	268	1.1%	33	8	2,678	
	RARI URB	131	2.39	6.47	8.00	162	0.7%	25	5	1,252	
	RARI RMR	543	2.39	6.47	2.00	168	0.7%	26	5	1,298	
	CALI URB	8,082	2.44	4.99	4.60	4,527	18.8%	907	4	36,285	
	CALI RMR	548	2.44	4.99	1.15	77	0.3%	15	4	615	
	WASH URB	920	2.92	3.45	25.50	2,363	9.8%	685	1	6,850	
	WASH RMR	620	2.92	3.45	6.38	398	1.7%	116	1	1,155	
	RMR OF US	76	3.00	3.50	100.00	798	3.3%	228	0	0	
	OFFSHORE	500	2.50	3.50	100.00	2,625	10.9%	750	0	0	
TOT OR AVG		18,857	2.70	5.07	22.21	24,061	100.0%	5,271	2.05%	107,901	0

RMR DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.23	0.25	0.16	0.11
MONTH	10,790	16,185	24,817	26,975	17,264	11,869
WEEK	2,698	4,046	6,204	6,744	4,316	2,967
***WEEKEND						
WE RMD DAY	674	1,012	1,551	1,686	1,079	742
LO DAY	0	0	0	0	0	0
RI DR ARE	101	152	233	253	162	111
RI DR DEPT	88	132	202	219	140	96
RI DAY IZE	324	486	745	809	518	356

INTER-CITY BUS ORIGINATING MODE FORECAST
THIS IS BASED ON CURRENT(1983) AVAILNESS

1983 07 26 B18C5 FILE:ORIICB1

	MARKET	NO OF HSE HOLD X 1000	AVG NO OF BOARD MEN VISITING	PENE RATE	I LIKELY TO VISIT	ESTIMATED VISITS X 1000	I OF TOTAL VISITS	NO OF VISITORS X 1000	MODAL SHARE I	PERSON
	CVRD	477	2.72	4.83	68.30	4,369	29.1%	886	0	0
	CFRD	55	2.72	4.83	14.10	102	0.7%	21	40	8,437
	BRW/ALL	36	2.72	4.83	14.10	70	0.5%	15	40	5,630
	FRAS/CHEAM	34	2.72	4.83	14.10	63	0.4%	13	25	3,260
	SUNSHINE	9	2.72	4.83	14.10	17	0.1%	3	0	0
	CAPITAL	95	2.70	4.45	44.50	508	3.4%	114	15	17,121
	REM VAN IS	128	2.70	4.93	14.10	240	1.6%	49	18	8,771
	REM BC	162	2.72	4.93	14.10	306	2.0%	62	18	11,183
TOT B.C.		998	2.72	4.82	24.68	5,675	37.8%	1,163	4.69%	54,603
	ALTA URB	443	2.89	4.75	11.90	724	4.8%	152	5	7,618
	ALTA REM	323	2.89	4.75	2.98	132	0.9%	28	5	1,391
	EDM/EAS UR	332	2.53	5.86	5.60	276	1.8%	47	5	2,352
	EDM/EAS RU	367	2.53	5.86	1.40	76	0.5%	13	5	650
	ONT URB	1,969	2.71	4.63	7.30	1,804	12.0%	390	2	7,791
	ONT RUR	1,032	2.71	4.63	1.83	237	1.6%	51	2	1,024
	P Q URB	1,398	2.69	8.66	3.00	977	6.5%	113	2	2,256
	P Q RUR	775	2.69	8.66	0.75	135	0.9%	16	2	313
	MARI URB	131	2.26	6.78	6.50	130	0.9%	19	0	0
	MARI RUR	543	2.26	6.78	1.43	136	0.9%	20	0	0
	CALI URB	8,082	2.21	5.38	1.20	1,153	7.7%	214	1	2,143
	CALI RUR	548	2.21	5.38	0.30	20	0.1%	4	1	36
	WASH URB	928	2.79	4.24	12.00	1,306	8.7%	308	2	6,160
	WASH RUR	630	2.79	4.24	3.00	220	1.5%	52	2	1,038
	REM OF US	76	3.00	3.50	100.00	798	5.3%	228	0	0
	OFFSHORE	500	2.00	2.00	100.00	1,200	8.0%	600	0	0
TOT OR AVG		18,857	2.62	5.18	19.26	14,998	100.0%	3,418	2.6%	87,374

MEN DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.25	0.25	0.16	0.11
MONTH	8,737	13,106	20,096	21,844	13,980	9,611
WEEK	2,184	3,277	5,024	5,461	3,495	2,403
***WEEKEND						
WK END DAY	546	819	1,256	1,365	874	601
***WEEKDAY						
WEEKDAY	362	393	603	655	419	288

INTER CITY BUS ORIGINATING MODE VOLUME FORECAST
THIS BASED ON EXTENSIVE AWARENESS

DATE: 1983 07 26 DISCS FILE: OBIICB2

	MARKET	NO OF [illegible] HSE HOLD X 1000	AVG # OF [illegible] MEN VISITING	PENE RATE	% LIKELY TO VISIT	ESTIMATED VISITS X 1000	% OF TOTAL VISITS	NO OF VISITORS X 1000	MODAL SHARE %	PERSON
	CVRD	477	2.75	4.83	72.60	4,600	19.1%	952	0	0
	CVRD	55	2.75	4.83	16.90	123	0.5%	26	40	10,225
	RDH/ALL	38	2.75	4.83	16.90	85	0.4%	18	40	7,064
	FRAS/CHRAN	34	2.75	4.83	16.90	76	0.3%	16	25	3,950
	SUNSHINE	9	2.75	4.83	16.90	20	0.1%	4	0	0
	CAPITAL	95	2.66	4.83	49.50	604	2.5%	125	15	18,763
	RDH VAN IS	128	2.75	4.83	16.90	287	1.2%	59	18	10,708
	RDH BC	162	2.75	4.83	16.90	364	1.5%	75	18	13,552
TOT B.C.		998	2.74	4.83	27.94	6,160	25.6%	1,275	- 5.04%	64,262
	ALTA URB	443	2.78	4.70	19.50	1,129	4.7%	240	5	12,008
	ALTA RUR	323	2.78	4.70	4.88	206	0.9%	44	5	2,191
	NAE/EAS UR	332	2.72	6.05	9.60	524	2.2%	87	5	4,335
	NAE/EAS RU	367	2.72	6.05	2.40	145	0.6%	24	5	1,198
	ONT URB	1,969	2.71	4.50	9.50	2,281	9.5%	507	2	10,136
	ONT RUR	1,032	2.71	4.50	2.38	300	1.2%	67	2	1,331
	P Q URB	1,398	2.70	7.99	6.40	1,930	8.0%	242	2	4,831
	P Q RUR	775	2.70	7.99	1.60	268	1.1%	33	2	670
	MARI URB	131	2.39	6.47	8.00	162	0.7%	25	0	0
	MARI RUR	543	2.39	6.47	2.00	168	0.7%	26	0	0
	CALI URB	6,082	2.44	4.99	4.60	4,527	18.8%	907	1	9,071
	CALI RUR	548	2.44	4.99	1.15	77	0.3%	15	1	154
	WASH URB	920	2.92	3.45	25.50	2,363	9.8%	685	2	13,701
	WASH RUR	630	2.92	3.45	6.38	398	1.7%	116	2	2,310
	RDH OF US	76	3.00	3.50	100.00	798	3.3%	228	0	0
	OFFSHORE	300	2.50	3.50	100.00	2,625	10.9%	750	0	0
TOT OR AVG		18,857	2.70	5.07	22.21	24,041	100.0%	5,271	2.4%	136,199

RDH DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.23	0.25	0.16	0.11
RI RDH	12,630	18,930	29,026	31,550	20,192	13,882
RI WE	3,155	4,732	7,256	7,887	5,048	3,470
***WEEKEND						
RI DAY 25%	789	1,183	1,814	1,972	1,262	868
***WEEKDAY						
RI DAY 12%	379	568	871	946	606	416

MARINE ORIGINATING MODE VOLUME FORECAST
THIS IS BASED ON CURRENT(1983) AWARENESS

DATE: 1983 07 26 D18C5 FILE:ORIMAR1

MARKET	NO OF HSE HOLD X 1000	AVG NO OF BOARD MEN VISITING	PENE RATE	% LIKELY TO VISIT	ESTIMATED VISITS X 1000	% OF TOTAL VISITS	NO OF VISITORS X 1000	MODAL SHARE %	PERSON
GVRD	477	2.72	4.83	68.30	4,369	29.1%	886	1	8,862
CFRD	55	2.72	4.83	14.10	102	0.7%	21	0	0
NSH/ALL	38	2.72	4.83	14.10	70	0.5%	15	0	0
PRAR/CHEAM	34	2.72	4.83	14.10	63	0.4%	13	0	0
SUNSHINE	9	2.72	4.83	14.10	17	0.1%	3	5	173
CAPITAL	95	2.70	4.45	44.50	56[illegible]	3.4%	114	5	5,707
RMN VAN IS	128	2.70	4.93	14.10	240	1.6%	49	2	975
RMN BC	162	2.72	4.93	14.10	306	2.0%	62	0	0
TOT B.C.	998	2.72	4.82	24.68	5,675	37.8%	1,163	1.35%	15,716
ALTA URB	443	2.89	4.75	11.90	724	4.8%	152	0	0
ALTA RUR	323	2.89	4.75	2.98	132	0.9%	28	0	0
NAR/SAS UR	352	2.53	5.86	5.89	276	1.8%	47	0	0
NAR/SAS RU	367	2.53	5.86	1.40	76	0.5%	13	0	0
ONT URB	1,969	2.71	4.63	7.30	1,804	12.0%	390	0	0
ONT RUR	1,032	2.71	4.63	1.83	237	1.6%	51	0	0
P Q URB	1,398	2.69	8.66	3.00	977	6.5%	113	0	0
P Q RUR	775	2.69	8.66	0.75	135	0.9%	16	0	0
MARI URB	131	2.26	6.78	6.50	130	0.9%	19	0	0
MARI RUR	543	2.26	6.78	1.63	136	0.9%	20	0	0
CALI URB	6,882	2.21	5.38	1.20	1,153	7.7%	214	0	0
CALI RUR	548	2.21	5.38	0.38	20	0.1%	4	0	0
WASH URB	920	2.79	4.24	12.00	1,306	8.7%	308	1	3,080
WASH RUR	630	2.79	4.24	3.00	220	1.5%	52	1	519
RMN OF US	76	3.00	3.50	100.00	798	5.3%	228	0	0
OFFSHORE	300	2.00	2.00	100.00	1,200	8.0%	600	0	0
TOT OR AVG	10,857	2.62	5.18	19.26	14,998	100.0%	3,418	0.6%	19,315

MON DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.23	0.25	0.16	0.11
MONTH	1,931	2,897	4,642	4,829	3,090	2,125
WEEK	483	724	1,111	1,207	773	531
***WEEKEND						
WK END DAY	121	181	278	302	193	133
***WEEKDAY						
WEEKDAY	58	87	133	145	93	64

MARINE ORIGINATING MODE [redacted] FORECAST
THIS BASED ON EXTENSIVE AWARENESS

DATE: 1983 07 26 DISC5 FILE:ORIMAR2

	MARKET	NO OF HSE HOLD X 1000	AVG NO OF RSEND MEN VISITING	PENE RATE	% LIKELY TO VISIT	ESTIMATED VISITS X 1000	% OF TOTAL VISITS	NO OF VISITORS X 1000	MODAL SHARE %	PERSON
	GVRD	477	2.75	4.83	72.60	4,680	19.1%	952	1	9,523
	CFRD	55	2.75	4.83	16.90	123	0.5%	26	0	0
	REM/ALL	38	2.75	4.83	16.90	85	0.4%	18	0	0
	FRAS/CHRAN	34	2.75	4.83	16.90	76	0.3%	16	0	0
	SUNSHINE	9	2.75	4.83	16.90	20	0.1%	4	5	209
	CAPITAL	95	2.66	4.83	49.50	604	2.5%	125	5	6,254
	REM VAN IS	138	2.75	4.83	16.90	287	1.2%	59	2	1,190
	REM BC	162	2.75	4.83	16.90	364	1.5%	75	0	0
TOT B.C.		998	2.74	4.83	27.94	6,160	25.6%	1,275	1.347%	17,177
	ALTA WEB	443	2.78	4.70	19.50	1,129	4.7%	240	0	0
	ALTA REM	323	2.78	4.70	4.88	206	0.9%	44	0	0
	MAN/SAS WE	332	2.72	6.85	9.60	524	2.2%	87	0	0
	MAN/SAS RE	367	2.72	6.85	2.40	145	0.6%	24	0	0
	ONT WEB	1,969	2.71	4.50	9.50	2,281	9.5%	507	0	0
	ONT REM	1,032	2.71	4.50	2.38	300	1.2%	67	0	0
	P Q WEB	1,398	2.70	7.99	6.40	1,930	8.0%	242	0	0
	P Q REM	775	2.70	7.99	1.60	268	1.1%	33	0	0
	MARI WEB	151	2.39	6.47	8.00	162	0.7%	25	0	0
	MARI REM	543	2.39	6.47	2.80	168	0.7%	26	0	0
	CALI WEB	8,082	2.44	4.99	4.60	4,527	18.8%	907	0	0
	CALI REM	548	2.44	4.99	1.15	77	0.3%	15	0	0
	WASH WEB	920	2.92	3.45	25.50	2,363	9.8%	685	1	6,850
	WASH REM	620	2.92	3.45	6.38	398	1.7%	116	1	1,155
	REM OF US	76	3.00	3.50	100.00	798	3.3%	228	0	0
	OFFSHORE	100	2.50	3.50	100.00	2,625	10.9%	750	0	0
TOT OR AVG		18,857	2.70	5.07	22.21	24,061	100.0%	5,271	0.4%	25,182

REM DIST	MAY	JUNE	JULY	AUGUST	SEPT	OCT
	0.10	0.15	0.23	0.25	0.16	0.11
MONTH	2,518	3,777	5,792	6,295	4,029	2,770
WEEK	630	944	1,448	1,574	1,007	693
[redacted]WEEKEND						
WK END DAY	157	236	362	393	252	173
[redacted]WEEKDAY						
WK DAY	76	113	174	189	121	83